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ORIGINAL ARTICLES.

ELECTROLYSIS IN SURGERY; AND TABULAR STATISTICS OF ONE HUNDRED CASES OF URETHRAL STRICTURE.[1]

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Electrolysis is the process of decomposing a compound body by electricity. Applied in surgery this process has also the power of absorption.

Webster's definition of absorption is: "Absorption is the process, or act, of being made passively to disappear in some other substance, through molecular or other invisible means, as the absorption of light, heat, electricity, etc." Therefore, I have called this action "a galvanic chemical absorption." The body to be decomposed or absorbed must be a conductor, and must possess certain elements susceptible of decomposition by the current; it must also contain water and a salt. Blood and muscular tissues are good electrolytes, and fibrous tissues are more or less decomposed, according to the elements which enter into their composition. If the parts to be acted upon are devoid of water, the electrolytic action will be slow, because water or moisture is an essential factor, and forms one of the necessary elements of successful battery decomposition.

The Battery.—Any good *galvanic* battery can be used for electrolysis. The expert and specialist may have large instruments with auxiliaries, but the general practitioner can begin by using a small battery of twenty cells, which suffices for most of the operations. The Bunsen elements of zinc and carbon have given the best satisfaction, with cells made of hard rubber containing a solution of diluted sulphuric acid and bichromate of potassa. The fluid ought not to be too strong, or the action will be very violent at first, and the polarization too rapid, very soon weakening the current and incrusting the elements with crystals. The battery must be arranged for intensity rather than quantity, or, practically speaking, the current must not cauterize the surface, or cut and destroy tissue like galvanocautery, but must work, according to the power employed, within a certain radius of the pole, in order to bring about decomposition. Hence, we want smaller plates and use more cells. A steady current is essential, which on in- or decreasing, the current will produce no shocks from interruptions. A rheostat attached to the battery is a nicety, convenient in some cases, but as a rule, it is not needed, as the current can be graduated sufficiently from cell to cell, slowly increasing or decreasing it, which in a well constructed battery is the case. It is more impracticable to state dogmatically how many cells or how great an amount of electricity should be used in these operations than to lay down the dose of morphine, or any other drug, that would suit all patients. The amount of electricity to be used depends partly on the work to be done, partly on the nature and composition of the part to be acted upon, and particularly does it depend on the sensation and susceptibility of the patient; for these reasons a galvanometer is of little use, even if we had one that measured the current correctly. It would certainly be desirable to express the "dose" of electricity in terms comprehensible to everybody, just as we designate the doses of drugs, but correct galvanometers and portable batteries, in the strictly practical sense, are still things to be looked for in the future. However, in the practical application of electricity there are still other facts to be considered, such as the state of the atmosphere, which conducts electric currents and modifies its resistance by the amount of humidity it contains. In clear, dry weather six cells will accomplish as much as ten cells will in a rainstorm or during a fog. The state of the cuticle, the material composing the electrodes, the strength of the fluid, the clean or crystallized surface of the elements, and many other factors, will modify and alter the result, and a patient may not be able to endure so much one day as he had borne previously. Hence, to express the amount of current by stating the number of cells used is indefinite, and only relatively correct. The electrode wires, which conduct the electric current from the battery to the handles or electrodes, are best made of copper wire, insulated by woven cords or a gutta-percha covering. One end of the wire is connected with the positive and negative poles respectively, and the distal end is fastened by screws to the electrode. The points of the electrodes are made of different

[1] Read to the Section on Surgery and Anatomy, June 6, 1883.

metals, as copper, zinc, nickel, silver, gold, or platinum, which are formed into different shapes, as bougies, needles, cups, plugs, specula, etc., according to the part upon which it is to be employed. In some cases it will suffice if only one electrode is of metal, while the other may be a sponge electrode, its only function being to close the circuit.

The Action of the Poles.—In order to use electrolysis intelligently, it is of the greatest importance to know the difference and peculiar action of the two poles. If we decompose water by electricity, we find that the oxygen is attracted by the positive and the hydrogen by the negative pole. Now we should remember that *pure* water is not easily decomposed, but the difficulty is overcome if the water holds some salts in solution. If so, then the positive pole will attract the acids, and the negative the alkalies and bases. Hence it is that the positive pole acts like an *acid*, and burns like fire, which is not only exceedingly painful, but may leave a hard resilient cicatrix. On the other hand, the negative pole acts more like a caustic alkali, which does not hurt so severely during the application, and leaves, if carried to excess, a cicatrix which is soft and not retractile. Having become acquainted with the different properties of the poles, which possess each their own specific powers, it is evident from the foregoing that for the immediate destruction of tumors and strictures the negative pole should be selected. Therefore the principal actions of the poles in electrolysis will be as follows:

Positive pole coagulates blood, attracts acids and oxygen.

Negative pole dissolves the blood, attracts alkalies, bases, and hydrogen, coagulates albumen and absorption.

Experiments for the Decomposition by Electrolysis.—To illustrate the action of the poles as described, I will now electrolysize a solution of iodide of potassium in water. This can be done by simply holding both poles in the solution, while the galvanic battery is generating electricity.

The experiment, however, which I now will make before you is more strikingly demonstrative, and I believe is original with me. These two small glass vials I fill with a solution of iodide of potassium. The bottoms of the vials are substituted by a piece of a pig's bladder, the necks of the vials are then stopped by a cork, through which runs a platinum wire, one end of which is immersed in the solution, and the other end from each bottle is attached to one pole of the galvanic battery.

Both vials, so closed, are now placed in a dish of water; they are six inches distant from each other. There is, as is seen, no communication between them except the water, and so long as the battery is at zero, you will see no change in the solution, which is transparent and undisturbed. Please notice the change which now takes place as soon as the battery begins to act. I begin with only six cells, and you will notice almost immediately in the vial connected with the positive pole, that in the clear solution streaks of yellow appear, and in about five minutes the vial contains only a dark-yellow fluid, which is the iodine set free at this pole. At the negative pole the contents of the vial remain clear, only the bubbles of froth welling up. This is the hydrogen set free from the water. The result of this electrolysis is iodine, oxygen, and hydriolic acid at the positive pole, while at the negative pole we find hydrogen and potassium.

If this same experiment is tried with a Faradic battery, as I have often verified, no change whatever takes place in the solution. This is another proof that the action of the galvanic current is widely different from that of the Faradic, and that for electrolysis a galvanic current only can be used.

To ascertain whether a battery is in good working order, and to find out which pole is positive or negative, the same experiment is of value, and can be made instantaneously with pure water. If the two poles are held in a dish or glass of water, around the negative pole the bubbles and froth of the hydrogen will be seen plainly to accumulate. If no action takes place, the battery is out of order, and does not generate the current.

Practical experiments I have made on dogs, also on pieces of meat and pathological specimens, particularly with carcinoma. From among them I will mention the following:

1. Into a piece of raw fresh pork two large platinum needles were inserted, at a distance of three inches. The current from a galvanic battery of thirty-five cells was allowed to pass for fifteen minutes, after which time the meat between and around the needles was thoroughly changed into a soft pulp. A weaker current caused changes accordingly; the current of five cells produced distinct effects in five seconds, twenty cells in one second.

2. Into a piece of meat containing a bone in its center the needles were inserted at a distance of 2½ inches from each other. One large platinum needle was then connected with the positive pole, while with the negative pole two small steel needles were connected. These needles were inserted close to the bone, and one directly into the bone cells. The galvanic current of thirty-five cells in fifteen minutes produced changes in the entire tissues, so that even the bone around one negative needle was entirely destroyed.

Practical Uses in Surgery.—Manifold are the reports of the use of electrolysis in the different branches of surgery. Want of space will not permit me to present all these here; therefore I will mention some only in a cursory manner, without going into their details, descriptions, or systematic orders. The electrolysis has been used with more or less success in the following diseases:

Aneurism.—The first cure is reported by Petri-

quin as far back as 1845 (*Bulletin Gén. de Thérap.*, Vol. XXXI). Many other cases are reported; among them, however, are a large percentage of failures. More recently better results have been obtained, so that out of eighty-nine cases thirty-two cures have been reported, one of which was an aneurismal tumor of the external iliac. Dr. Bowditch reports one case of aneurism of the aorta, unproved, in 1876 (Boston *Med. and Surg. Jour.*, No. 2, 1876). Among other operators are Ciniselli, Dujardin-Beaumetz, Laurent Robin (Robin, De l'Electro-poncteur dans la Cure des Anévrysmes Intra-thoraciques, 1880), Sands, Lincoln, Keyes, Levis, Pepper, Heath (*Lancet*, Jan. 31, 1883), and others.

In *varicocele* I have had cures and failures, according to the different cases, patients, and methods employed.

Nævi and port-wine marks have resulted probably in many more failures than successes, and galvano-cautery acts in general better in these cases. However, (Beard, in *Archiv. of Elect. and Neurolog.*, Vol. II., No. 1), Bartholow says: "Polypi, nævi, sebaceous tumors, and similar new formations are promptly cured by electrolysis."

Subcutaneous erectile tumors have been successfully treated by W. T. Hutchison, of Providence (*Archiv. Electrol. and Neurol.*, Vol. II, No. 1).

Ganglions, or weeping sinews, have been cured by David Prince, of Jacksonville, Ill. The doctor says: "A needle introduced through the little tumor which incloses the gelatinous accumulations around a tendon, and held there only a few seconds until some apparent action has been induced, leads generally to a speedy disappearance of the tumor without slough or suppuration.

Hydrocele cures by single, or by repeated applications have been reported by Althaus, Frank (*Archiv. of Electr. and Neurol.*, Vol. I, No. 2) Rodolfi (*Practitioner*, September, 1873), Erhardt (*Allgem. medic. Central-Zeitung*, 99, 1874) Bartholow (Medical Electricity, 1881). The principal method recommended consists in evacuating the fluid, then introducing two needles into the tunica vaginalis, where the electrolytic action is carried on. Variations of this method may be made. Failures with this method take place, just as well as with other means. The removal of superfluous hair is practised, and reported particularly by G. H. Fox (New York *Medical Record*, March 22, 1879).

In *extra-uterine pregnancy* electrolysis has here come to the rescue of surgery, saved life, and has done more in these cases than any other procedure. Repeated applications of galvanism, one pole in vagina or rectum, the other pole above the abdomen has destroyed the fœtus.

E. G. Landis was successful in a case of repeated extra-uterine pregnancy (*Medical News*, April 8, 1882).

Rockwell reports cases (*Medical Record*, February 17, 1883).

Ranula.—The electrolysis decomposes the contents of the sac, coagulates or destroys it. I have had a few cases.

Tumors of all kinds give a wide field for the treatment of electrolysis. The sanguine reports of some operators are contradicted by return of the malady and other unsuccessful cases. However, the successes of undoubted cases should stimulate the continuation of treatment in this direction in order to establish good methods. Cystic tumors of the neck have been reported cured by Amussat (*Bull. Gén. de Thérap.*, October 15, 1872); Ultzmann (*Wiener med. Presse*, No. 42–46, 1876); cures of cystic bronchocele by Smith (New York *Med. Record*, August 7, 1875), and Althaus (*Brit. Med. Jour.*, Vol. II, 1875). In solid tumors good results have been reported in Goitre by Wahltuch (*Medical Times and Gazette*, January 28, 1877), in enlarged submaxillary glands by Davis (Philadelphia *Med. Times*, October 2, 1871). In nasal polypi by Bruns (*Berlin. klin. Wochenschrift*, No. 27–28, 1872; No. 32, 1873).

Morrell Mackenzie in a paper on bronchocele says he cured by electrolysis nine cases out of thirteen.

Ovarian tumor cures have been reported by different authors, but particularly by Van Ehrenstein Clemens (*Deutsche Klinik*, No. 26–7, 1875), and Scmeleder (*Wiener Presse*, loc. cit., No. 50 and 52). The latter extols his favorable results with great force and assurance, and has only recently confirmed his successes and added new cases to his list.

Van Derveer reports successful cases by an entirely empiric method (Trans. Med. Soc. State of New York, 1878). Other authors have changed their favorable opinion, and later on reported adversely. An elaborate paper is written by Paul F. Mundé (Gynæcological Transactions for 1878), in which he expresses great doubt about the permanent good results of electrolysis in ovarian tumors. My own experience in these cases is not favorable, but I admit not having been persistent long enough in this treatment, as a peritonitis following the puncture of the needle frightened me from further experiments. Similar and even less satisfaction has electrolysis given in the treatment of uterine fibroids. In most cases reported as cured, the disease reappeared.

Malignant tumors, including epithelioma, carcinoma, and sarcoma. With these diseases I have had considerable experience, the results varying in both directions. While some patients succumbed to the disease, others were permanently cured. One case, particularly, has been reported to the Pathological Society, New York, in which the history and diagnosis were fortified by specimens and microscopical slides, which removed any doubt about the correctness of the statement (Newman, *Medical Record*, December 24, 1881).

Among other favorable reports, I mention W. H. Mussey (Transactions Amer. Med. Assoc.,

1872), Rockwell (*Archiv. of Elect. and Neurol.*, Vol. I, p. 74), Neftel (*Virchow's Archiv.*, Vol. LXX, p. 171), (New York *Medical Record*, September 1, 1869). The difference of opinion, and some doubts of some in the profession about similar cases, is not a disagreement, but depends on the nature of the disease. In the initial stage, when the tumor is a local affair, with distinct boundaries, the disease is amenable to treatment, while later, when the lymphatics have carried the cancer cells farther on, and made it a constitutional calamity, no treatment will be of any avail. In the former case the electrolytic treatment has an advantage, but the success depends on the method employed, on the skill and patience of the operator, on the constitution of the patient, on the location and nature of the tumor, etc. A wide field is open for the study of these diseases, and I am confident that the future will bring an improved method for the successful treatment of cancer by electrolysis.

Prostate.—In the disease of the prostate gland and seminal ducts great caution is required in order not to cause an inflammation or over-stimulation of the parts. There is no doubt that with care in the manipulation of the instruments and the electric current much good can be done. Diminution of senile hypertrophies has been effected by different operators. Five cases have been reported by Bredert (Hageman) in the *Berliner klinische Wochenschrift*. Indurations in the pelvic cavity of females, the consequence of pelvic cellulitis, metritis, oöphoritis, also salpingitis, have been very successfully treated by electrolysis. The cases under my case have not been published.

Strictures in different localities of the body have been treated by electrolysis with great benefit. Gorecki's method for strictures in nasal cavities has also been used for the lachrymal canal, and for the dilatation of the Eustachian tube by M. J. Mercie (*Medical News, Quarterly Epitome*, March, 1883, p. 117). Œsophageal strictures yield to electrolysis when not malignant; cures have been reported by Frank, Butler, Prince, and others. Strictures of the female urethra are rare, but they occur occasionally and are readily cured (Newman, *Amer. Jour. of the Medical Sciences*, October, 1875). Next we find the canal of the uterus constricted, causing dysmenorrhœa, and occasionally the vagina. In all these maladies electrolysis has done good. In 1872 I treated in this manner successfully a case of atresia vaginæ which has not been published.

Strictures of the rectum have better chances by electrolysis than by other means, provided they are not malignant. In cases under my care I have had failures and successes (Newman, *New England Medical Monthly*, September, 1882), but radical cures have been proved by *post-mortem* specimens presented to the Pathological Society of New York.

Stricture of the Urethra.—The most brilliant results have been achieved in this field of surgery by electrolysis. I have practised it just fifteen years, during which time I have improved myself, the instruments, and the method. It gives me pleasure to present to you here a tabular statistic of 100 cases of urethral stricture treated successfully by electrolysis without any relapse. Excepting the last few cases, all these patients have been kept under observation, and have remained well without any relapse for three and one-half to eleven years respectively. The proof that such patients remained well was given by an examination either by myself or by a reliable family physician, and in each case it was found that the same size of sound passed easily through the urethra, which had been used at the last séance so many years ago. These hundred cases may be called consecutive; they have been taken from my note book of private practice, including such cases of patients who had returned for treatment and could be kept under observation. Necessarily I had to exclude from this list patients who did not return for treatment, or when cured were lost sight of, going to China or other parts unknown. Again, about two cases in regular order I excluded from this list, which had such complications that the stricture could not be cured, one of which was a chronic urethral abscess, the patient having no time to remain in the city, but had to return to his home in Ohio.

I can report many hundred cases treated and cured by me of private patients, but some have too recently been treated, others have disappeared or not given their names, besides many perambulant patients in hospital and dispensary practice. Such report would swell the number of cases, but is not a reliable statistic, proving cures without relapses. Therefore this list presented does not state the whole number of cases or cures, but only a list of patients who have been reëxamined in later periods, as stated, and found well, without any contraction of urethral calibre or any relapse. Some gentlemen may object to the calibre of the urethra stated in this list, and, according to the fancy of some operators, insist on a larger calibre as a normal one. To this I answer, that the size of the urethra is not the important point; the patient's comfort and wish have to be considered. The normal size of the urethra is still a mooted question. My patients, as reported, were well for all practical purposes, feel comfortable, enjoy life without any interruption to their daily avocations, do not wish any more improvement to their state of health, and even object to any larger calibre of the urethra.

The instruments used for this operation consist of a good galvanic battery as described before, and the electrode bougie. The latter is of great importance, and has now been perfected and made for me by Messrs. George Tiemann & Co., of this city. It is of metal, well insulated, except at either end, smooth, well polished, and without any inequalities.

The upper end of the bougie is to be connected

by screws to the negative pole of the battery; the lower end is a metallic bulb, mostly of silver, which is used as the electrode to absorb the stricture. This bulb may have different shapes, as the conical, acorn, or egg-shaped; I prefer the latter for general use. My electrode bougies have a short curve. Some manipulators advocate straight electrode bougies; but while they can be used only in the first part of the urethra, I can see no advantage for it, while the straight instruments can be used with more force. I make it an invariable rule to avoid force; the electrode must be guided only; the work must be done by the electricity, not by the hand. I also wish to work through all strictures at one séance, and feel more safe to pass the bougie into the bladder. My statistics will show that stricture occurred in all portions of the urethra; that many, nay, most patients under my care had multiple strictures, and that in most cases it is beneficial to introduce bougie and electricity into the bladder. In some cases I use conical electrodes, in others I have the conical sounds tunnelled, running a filiform guide, and still other instruments in which the tunnelled electrode is combined with a catheter. All are useful, according to the cases and the indication of relief needed.

Modus Operandi.—The topography of the urethra must be well ascertained, the strictures measured, and a plan for the operation made out accordingly, with a full knowledge of what it is intended to accomplish. The patient's susceptibility to the galvanic current must be ascertained. The posture which the patient should assume during the operation is a matter of slight importance. According to his convenience, he may stand, sit, or lie on his back. Anæsthetics are not needed, as no pain is caused, and the patient should be conscious in order to express his sensations. For ordinary strictures the size of the bougie selected should be three numbers (French) larger than the stricture. This bougie electrode is then introduced into the urethra, until the bulb is arrested by the stricture. A sponge electrode, wet with hot water and connected with the positive pole of the battery, is to be held firmly against the patient's skin, either in the palm of the hand or pressed against the abdomen, the thigh, or some other part, to complete the circuit. While both poles are held in this manner, the current is to be increased very slowly and gradually, one cell at a time, until the patient feels a warm and slightly pricking sensation. The operator must keep the bougie steady against the stricture and soon will find that absorption takes place, that the stricture yields, dilates, the instrument slowly advances and passes the obstruction—at times it will fairly jump through the stricture. If there are more strictures than one, the bougie must be guided in the same way until it enters the bladder. Then the electrode is to be withdrawn slowly, each stricture well worked out, until the first stricture is passed, when the current is again to be reduced slowly, cell by cell to zero; and not until *then* is the electrode to be removed. During the whole operation the electrode must be held loosely and gently, and in its place against the obstruction, all pressure or force being avoided. The bougie will take care of itself, doing its work by the electrolytic action of the current. A séance might last from five to twenty minutes.

In the year 1867 I read a paper before the Journal Association in New York, on my first operations of electrolysis, which I had practised then with most primitive appliances (New York *Med. Record*, March, 1867). Afterward a regulated plan, my own method with improved instruments, was discussed in a paper read before the Medical Society of the State of New York (Transactions Med. Soc. of the State of New York for 1874). The ideas thus expressed have undergone no essential changes, and hold good the present day. They have been confirmed by my next report in ten years' experience in the treatment of stricture of the urethra (New York *Med. Record*, August 12 and 19, 1882).

While crude experiments have been made since 1847, the pioneers of electrolysis in stricture are Mallez and Tripier. During the last ten years contemporaries have reported many successful cases, particularly T. T. Frank, D. Prince, John Butler, Mynter, Benson, A. T. Douglas, and others.

Since my last article was written, August, 1882, almost daily new cases have been presented and treated with the same uniform success. The most of these cases were the worst strictures which can come under observation, and many were accompanied by the family physician, who acknowledged that they could not pass such strictures with any instrument, no matter how small. Among other new cases I will notice a few in brief:

Case I.—Dr. D., a practising physician in Long Island, had strictures for the last twenty-five years, and had been treated in the usual manner with only temporary relief. The impediment became gradually worse. Since 1877 has been under the care of an eminent surgeon, who during these years never has passed a sound through all strictures in the bladder.

Patient came under my care in October, 1882, when I found the urethra a mass of strictures and indurated tissue. A small *bougie à boule* was arrested at five inches, at which place no instrument would pass.

Then with electrolysis a bougie, No. 11 French, passed all strictures into the bladder. Ten cells were used. The operation lasted twenty minutes, after which a good-sized stream emptied the bladder and gave marked relief. No particle of blood followed, nor did the operation cause the slightest pain.

There were six distinct strictures, respectively at 1¾, 2½, 4½, 5, 5¾, and 7 inches from meatus. The electrolytic applications were repeated in

large intervals from three to six weeks each. The patient was not detained from his business, and improved steadily, so that on February 13, 1883, a bougie No. 26 French passed easily.

CASE II.—October 17, 1882, Mr. B., from Jersey, was brought to my office by several physicians, who all acknowledged that they could not pass any instrument through the strictures. The patient has suffered for fifteen years, and is now run down, very weak; has lost flesh; never free from pain; is constantly straining, and can neither pass water nor retain it. The urine dribbles away constantly and excoriates the tender skin, notwithstanding the patient wears a urinal.

On examination I found the statement of the doctors correct: a mass of hard strictures. Filiform bougie entered everywhere in lacunæ, which bleed on ever so careful an examination. At 5 inches no instrument will pass, and is arrested. The family physician says he knows no instrument will pass any further. If he had been able to pass it he would not have brought the patient to me.

Then electrolysis was used with a bougie, No. 14 French, eleven cells, seven minutes, in which time the bougie made steady progress, and passed finally into the bladder, to the great relief of everybody present.

There were five distinct strictures at 3½, 5, 6, 6½, and 8 inches from meatus. In four séances, up to November 28, he has so much improved that he has gained fifteen pounds in flesh, his normal weight. Water passes freely; the bladder is entirely under his control, and the urinal discarded. He is well, attends to his business and enjoys his life.

CASE III.—T. T. came to me, November 14, 1882, with complete occlusion of urethra and consequent retention of urine. Has had strictures for twenty years. No treatment cured him. The strictures became worse, so that recently he was in constant pain, having incontinence and retention at the same time, the water constantly dribbling away and incapacitating him for any work. The smallest instrument will not pass, but an electrode bougie, No. 14 French, worked its way slowly, with the power of twelve cells, and for seventeen minutes, through all strictures and into the bladder.

December 20, after three electrolytic séances, patient said that his stream is large, and he is better in every way than for the last twenty years. Soon after, a bougie, No. 23 French, passed easily.

Cases like the foregoing I see often, of long standing, of twenty years and longer, in which all kinds of treatment have been used without effecting any cure, and these yield to the method by electrolysis, with a permanent cure.

Often, and in many cases, it has been proved that electrolysis would make pass a bougie of a certain size through strictures which nothing could be introduced *without* the aid of electricity.

CASE IV.—February 20, 1883, W. J. A., æt. 36 years, of Bridgeport, Conn., had a stricture for over ten years, following a gonorrhœa which off and on closed up. Used a dilator of his own invention, a spiral instrument, to dilate the stricture. Sunday last, in using this instrument, he ruptured the urethra, which was followed by pain and hæmorrhage. Micturition was imperfect, with pain, and drop by drop by overflow, the bladder never being emptied. Tuesday, two days after the accident, patient was brought to my office by his physician, Dr. B. W. Munson, of E. Bridgeport. Patient was very nervous, exaggerated by a severe psoriasis. Whalebone guides of different sizes would not enter further than five inches, the seat of the stricture and rupture. Each guide entered and stuck in some of the numerous pouches, but none entered or passed the stricture—the guides thereby created more irritation and hæmorrhage.

Electrolysis was used next, directed with an electrode bougie, No. 12 French, seven cells, ten minutes, which worked slowly through the stricture. Patient felt each movement, but had no pain, nor was a single drop or a show of blood drawn. Immediately after the operation he passed a steady, good stream of water, such as he had not seen for years.

March 6. Patient since the operation has felt well, and the stream of water has increased in size. Electrolysis, bougie No. 14 French, thirteen cells, weekly for twenty minutes, worked well through the strictures. Meatus is large, but nevertheless no guides would pass.

The operation never causes pain or detention from ordinary business, which often surprises the patient. A physician residing in the next county, here in Connecticut, who had been treated at my office, wrote me on his return home: "I was much surprised to find that there was less irritation after the use of electricity than after the introduction of the simple sound. The annoyance caused by the electricity was simply zero."

Many inquiries about particulars and details have led me to tabulate the following rules as a safe guide for practitioners who wish to adopt the treatment of electrolysis in stricture urethral:

1. Begin the use of electrolysis carefully; do not cauterize, only absorb; in many cases the current of six cells will suffice.

2. Regulate the power and current of electricity according to the susceptibility of the patient.

3. Repeat séances in intervals not too frequent in succession.

4. Do not grease the bougie with substances which are non-conductors, and would insulate.

5. Wet your electrode sponges with hot water; keep the plates in the battery fluid only during the operation.

6. Never use force with your bougie; never cause hæmorrhage.

7. Do not operate while the urethra is in an acute or even subacute inflammatory condition, or when it is too painful.

8. Use your battery fluid weak.

9. Never use two bougies in succession with electrolysis during one séance.

10. Practise at first only one method by absorption. "*Weak currents; long intervals.*"

Since my last article was written I have received many additional reports from eminent practitioners, that they either have adopted my method or have practised it with equal success. Among others, Dr. D. P. Farrand, of Detroit, Mich., writes me, October 6, 1882, that after reading my article he has operated with electrolysis in about eighteen cases of stricture, with very gratifying results. A letter from Dr. Hutchinson, of Providence, dated September 28, 1882, gave me great pleasure, in which he says that he has operated in twenty-one cases within the last six months, with unvarying success.

J. H. Glass, of Utica, reports nine cases (New York *Medical Record*, May 12, 1883), all permanently cured. He says in his paper: "To the adoption in the main of his (Newman's) principles of treatment I ascribe the successful results obtained in the following cases." He concludes his paper as follows: "By recent communications I find that in *no* case has there been any return of stricture symptoms. This, I think, justifies me in the claim that a complete and radical recovery was effected in each case."

While these and many other reports of cases speak for themselves, so that at the present time 1,000 cases could easily be collected, the most fastidious medical sceptic ought to be convinced by my present report of one hundred cases cured without any relapse during three to eleven years' careful observation. By such unique good results the method of electrolysis in the treatment of stricture of the urethra is fully tried and established, and every day brings new converts and makes new friends.

ERYTHROXYLON COCA.

BY J. L. GRAY, M.D.

CHICAGO, ILL.

Erythroxylon coca is a bush or branchy tree, which grows to a height of six or eight feet, and much resembles the black thorn. It is a native of the tropical valleys found on the east slope of the Andes, principally in Peru and Bolivia. In many parts of these countries it still grows wild, but that which is used by the natives is chiefly cultivated.

The seeds are sown in December and January in beds carefully protected from the sun. When the plants are one and a half to two feet high they are transplanted, being either arranged in furrows, or set into holes, according to the situation of the plantation. Suitable shade and moisture for the young plants are secured by sowing maize between the rows, or arbors of palm trees are constructed for purposes of shade.

In May the shrub is covered with small, delicate, white blossoms, which are succeeded by red berries.

When the shrub has attained an age of about two years it is ready for the first stripping. The leaves are said to be ready for plucking when they break upon being bent. The leaves are carefully picked and exposed to the sun in suitable places paved with stone, where they are left until thoroughly dried, great care being taken to avoid dampness. These cured leaves form the coca of commerce. They are carefully gathered into bundles, or "loaves," wrapped with banana leaves, and a large number of these "loaves" are finally wrapped in a coarse woolen cloth; or sometimes they are packed in fresh hides which upon drying contract, thus pressing the leaves into a small compass. The leaves are now ready for use or transportation according to circumstances.

In a good specimen the leaves should be unbroken, of a light-green color, with a faint odor of hay. When chewed they break down easily and have a bitterish, sometimes followed by a sweetish, but not unpleasant taste. They impart to water a beautiful green color, and the poorer the quality of the leaves, the darker green will be the color imparted to the water.

The larger proportion of the immense crop is consumed by the natives who chew the leaves. This is an almost universal habit among them, dating from a very remote period, and the leaf is still to the Indian of the mountains the support and in great measure the necessity of his life. He always carries his *chuspa*, or leathern pouch, containing the leaves, and a gourd to hold powdered unslacked lime. Three or four times a day he rests from his labor to chew the leaves, with which he mixes a small quantity of lime. With the aid derived from this chewing of the leaves he is able to undergo hardships and toil which under ordinary circumstances would seem to be impossible. That the effects of this habit of coca chewing are not deleterious to the health of the natives is in a measure proven by the fact that so many of them live to extreme old age and are able to endure such prolonged physical exercise and exposure with insufficient food and sleep. Thus von Tschudi relates the story of a native who was employed by him in very laborious digging. "During the five days and nights he was in my service he never tasted food, and took only two hours' sleep each night. But at intervals of two and half or three hours he regularly chewed about half an ounce of coca leaves, and he kept an *acullico* continually in his mouth. I was constantly beside him and therefore I had the opportunity of closely observing him. The work for which I engaged him being finished, he accompanied me on a two days' journey of twenty-three leagues across the level heights. Though on foot, he kept up with the pace of my mule, and halted only for the *chaccar*. On leaving me he declared he would willingly engage himself again for the same amount of work, and that he would willingly go through it

without food if I would but allow him a sufficient supply of coca. The village priest assured me that this man was sixty-two years of age and that he had never known him to be ill in his life."

But, notwithstanding this, several travelers, more especially the German naturalist Poeppig, have given unfavorable accounts of the effect of this habit, not more so, however, than can be given of the excessive use of wine, beer, or distilled liquors.

Dr. Poeppig asserts that its first evil effect is to weaken the digestion; it then gradually induces a disease locally named the *opilacion;* biliary affections with all the painful symptoms which attend them in tropical climates, and, above all, costiveness, are frequent and severe. The appetite becomes exceedingly uncertain, till at length the dislike for all nourishment is succeeded by an inordinate appetite for animal food; then dropsical swellings and boils come on.

Von Tschudi says the chewing of coca gives a bad breath, pale lips and gums, greenish and stumpy teeth, and an ugly black mark at the angles of the mouth. The unsteady gait, the yellow skin, the dim and sunken eyes encircled by a purple ring, the quivering lips and general apathy all bear evidence of the baneful effects of the coca juice when taken in excess. But after summing up all his inquiries, he says: "Setting aside all extravagant and visionary notions on the subject, I am clearly of opinion that the moderate use of coca is not merely innoxious, but that it may even be very conducive to health."

Dr. Weddell reports two or three cases in which from excessive use there was produced "a peculiar aberration of the intellectual faculties characterized by hallucinations."

Mantegazza in 1859 was probably the first to carefully study the effects of the coca. He used the leaves procured from Bolivia and experimented with the juice of the same obtained by chewing them. His conclusions were:

1. Coca has on the stomach a special stimulating action, by which digestion is very easy.

2. In strong doses it increases temperature, pulse, and respiration, and may even cause real fever.

3. Its use may be followed by a slight constipation.

4. In doses of from one to four drachms it excites the nervous system in such a way that muscular exercise is followed by less fatigue, with a considerable resistance against external disturbing influences.

5. In larger doses it causes hallucinations and delirium.

6. It probably diminishes some of the secretions.

From these experiments it would seem that coca promotes digestion by stimulating the acid gastric follicles, for when the drug is taken into an empty stomach it produces acid eructations.

So far as I know the chemical composition of coca has not been fully studied. But it is known to contain two or three active principles, the chief one being cocaine ($C_{17}H_{21}NO_4$) upon the virtues of which most of the properties of the drug depend. This alkaloid was first discovered by Niemann in 1859, though Dr. Weddell in 1853 thought he discovered in coca a principle similar to theine, and in 1857 an Irish chemist was reported as having discovered a principle similar to caffeine, and even up to the present time most observers believe cocaine to be identical in its effects with the alkaloids of tea, coffee, and guarana.

Dr. Alexander Bennett was perhaps the first in England to carefully study the effects of the drug. After a large number of experiments on animals his conclusions are:

1. The physiological actions of coca, tea, coffee, guarana, and coca are mainly, if not entirely, due to their neutral principles.

2. Cocaine, theine, caffeine, guaranine, and theobromine are powerful poisons, inducing a series of symptoms affecting the nervous, respiratory, circulatory, vaso-motor, and glandular systems, which terminate, if the dose be large enough, in death.

3. These five principles are, to all appearances, identical in physiological action.

4. In small doses, not ending fatally, these five substances produce, *a*, cerebral excitement not succeeded by coma, and, *b*, partial loss of sensibility.

5. In large doses they produce:

a. Cerebral excitement.

b. Complete paralysis of sensibility.

c. Tetanic spasms and convulsions.

d. Death.

6. They paralyze the entire posterior columns of the spinal cord, also the entire system of peripheral sensory nerves; but the anterior columns and the peripheral motor nerves are not paralyzed.

7. They frequently produce convulsions of a clonic character, but occasionally they cause tetanic spasms; which latter are sometimes so severe as to induce opisthotonos.

8. They do not produce muscular paralysis.

9. They at first increase, then impede, and lastly stop, the respirations.

10. They at first increase, and finally diminish both the force and frequency of the heart's contractions.

11. They produce at first contraction, and afterward dilatation, of the capillaries and small blood vessels, with stasis of the blood, indicating first irritation, and subsequent paralysis of the vaso-motor nerves.

12. They affect the temperature by first slightly lowering, and secondly increasing it.

13. They usually produce contraction of the pupil.

14. They produce an increase of the salivary secretion.

15. They induce a peculiar form of tenesmus, accompanied by a copious discharge of clear mucus from the bowels.

Dr. Isaac Ott, in the New York *Medical Record*, September 6, 1876, gives the results of his experiments with the drug, finding that "coca, on man, increases the pulse, elevates the temperature, dilates the pupil, and decreases the amount of water used and chloride of sodium excreted by the kidneys."

The chief difference in the conclusions arrived at by these two eminent experimenters from their observations on animals, is in the effect of the drug on the eye. Dr. Bennett believes it to contract the pupil, while Dr. Ott found dilatation of the pupil followed its administration; this latter we know, by subsequent investigation, to be the usual result.

Most of the observers who have studied its effects on the elimination of urea, agree that it diminishes the quantity excreted, though Gazeau, in a series of experiments on animals, found the quantity increased.

Schroff, Fronmüller, and Ploss believe the drug to have decided narcotic properties, while at the same time, from large doses, they noticed dizziness and tinnitus aurium, and by some observers (Anrep) a curious pendulum movement of the body of the animal has been noticed after large doses.

From a consideration of the physiological effects of the drug it is evident that it possesses remarkable power over the nervous system, affecting not only the peripheral system of sensory nerves, but portions of the spinal cord and brain; and it is in disorders of the nervous system that perhaps the most benefit is to be derived from its use.

If it be true, as is apparent from most of the experiments thus far reported, that it prevents tissue metamorphosis and is in a sense a nerve food, in that it stimulates and nourishes the nervous system without that reaction which follows the administration of all the other drugs of the class to which it belongs, it will prove to be of inestimable value to those persons who are obliged for long periods to subsist upon insufficient quantities of food and bear much exposure, as, for example, soldiers in the field, and sailors at sea. It may also be of decided benefit to those travelers who ascend steep and high mountains.

At this point the question arises as to the propriety or safety of placing the drug in the hands of the laity for miscellaneous use. While there can be no doubt of the wisdom of the rule that no drug should be used promiscuously by the public, yet it is possible to conceive of circumstances under which the general use of a drug like coca might be beneficial. It is doubtful whether the habit of coca chewing (among those who are not hereditarily predisposed to its use) would be formed even if its use were as free to the public as tea or coffee, and even if formed, I doubt whether the bad effects of the habit would be as marked as some writers would have us believe.

But aside from the use of the drug as an economizer of nerve force, it is of much value to the physician in the treatment of disease.

To enumerate all the diseases and conditions in which the drug has been administered would occupy more space than can be allotted to a paper like the present one. But the drug has been used with most benefit in certain disorders of the nervous system, such as melancholia, neurasthenia, and like conditions in which there is a lowering of nerve power. It has been used with very marked success in the treatment of the opium habit, some writers claiming for it almost a specific property.

Dr. McBean (*British Medical Journal*, March 10, 1877) has used the drug with apparently good results in typhus and typhoid fever, and other febrile diseases.

Coca has in the last few months attracted the attention of the medical world on account of the local anæsthetic properties of its alkaloid, cocaine. Most of the writers have noticed its benumbing effect on the mucous membranes, but the first to put this fact to a practical test was Dr. Karl Koller, who communicated the results of his experiments to the Vienna Royal Imperial Society of Physicians, October 17, 1884. He found it to have decided anæsthetic properties on the eye, and since the publication of his paper it has been used by many oculists in the removal of foreign bodies, for the operation of strabismus, and the like. Some unfavorable effects have been noticed by a few operators, but it is difficult to determine the cause. It is possible that its careless employment may be partly responsible for these ill effects.

Besides its use in operations on the eye, it has been successfully tried in minor operations on the mucous membranes, as about the mouth, nasal passages, urethra, vagina, etc. One or two enthusiastic writers believe that in cocaine we at last have a drug which will control hay fever.

But sufficient time has not elapsed since the first employment of this alkaloid to correctly estimate its virtues. It is evident, however, that it is destined to prove a valuable addition to the means at our command for the relief of pain.

I am inclined to believe that in coca we possess an agent which will be of much value in the treatment of neuralgias and asthma.

After a careful and unprejudiced study of the properties of erythroxylon coca it is doubtful whether any one will question that in this drug we have perhaps the most important remedial agent at the command of the medical profession, and one that in its importance is destined to outrival opium, quinine, or the bromides in its medicinal virtues.

In the preparation of this paper I have received much information from the following books and periodicals:

Johnson—Chemistry of Common Life.

Nothnagel and Rossbach—Materia Medica and Therapeutics.

Encyclopædia Brittanica—Coca.

Christison—Observations on the Effects of Coca (*British Medical Journal*, April 29, 1876).

Koller—Use of Cocaine, etc. (*Lancet*, December 6, 1884).

Mautegazza—On Coca, etc.

MEDICAL PROGRESS.

MEDICAL INSTRUMENTS, APPARATUS, Etc.

A PORTABLE ELECTRIC ACCUMULATOR.—At the Medical Society of London Dr. Felix Semon demonstrated a portable electric accumulator, by means of which illumination, faradisation, cauterization and electrolysis can be readily accomplished. This useful little instrument can be carried in the coat pocket. It measures four inches by three inches by three-quarters of an inch, and when completely charged only weighs eleven ounces. Dr. Semon showed how the accumulator could be charged by the surgeon himself, thus making sure that the battery should always be ready when wanted. By joining three or four more of these accumulators together, very considerable electric power can be obtained. As a means of illuminating the posterior pharynx, or vagina, or other cavity, the apparatus appears almost perfect. The intensity of the light can be regulated to a nicety by means of a resistance coil in the handle of the instrument holding the incandescent lamp. Those practitioners who use the laryngoscope, or who need the means of lighting a vaginal speculum in private houses, or even in the wards of a general hospital, will fully appreciate the value of an instrument which can be carried in the pocket, which is always ready for use, and which will render them independent either of daylight or darkness; for, on the one hand, it is very essential to have good illumination, and on the other, it is very convenient to have the room darkened, in order to see accurately either the larynx or other part under examination.—*Medical Times*, February 28, 1885.

MATERIA MEDICA AND THERAPEUTICS.

ATROPIA IN CHLOROFORM INHALATION.—Referring to death by syncope during anæsthesia by chloroform, Poirier (*Le Progrès Médical*) refers to the experiments of MM. Dastre and Morat, in which they utilize the known powers of belladonna to paralyze the moderator nerves of the heart. Experiments were first made on dogs, and the results obtained were so encouraging that Aubert, Gayet, and Tripier, surgeons of Lyons, were induced to try it on the human subject, and they obtained gratifying results. The following solution was employed:

Atropiæ sulph., $\frac{1}{4}$ gr.
Morphiæ hydrochlo., 1½ grs.
Aquædest., 2½3.

Hypodermic injection of a Pravaz syringeful was given from twenty to thirty minutes before the inhalation of the chloroform. The advantages of this procedure, which is now daily practised in the hospitals of Lyons, are the following: Security, greater rapidity with which anæsthesia is produced, absolute quiet of the patient, ease with which consciousness returns, and simplicity of results.—*Midland Medical Miscellany*, March 2, 1885.

PRESERVATION OF CHLOROFORM.—Professor Regnauld communicated to the Société de Biologie, at its meeting on November 15, the results of the prolonged researches which he has been engaged in as to the preservation of chloroform. From these it follows: (1) That if absolutely pure chloroform be exposed to solar light, whether direct or diffused, it gives the first indication of decomposition after two days during the high temperature and intense radiations of July, and only after five days in December. (2) The same chloroform may be preserved pure in contact with the air for more than fifteen months, on the condition of its being scrupulously abstracted from solar radiation. (3) The same chloroform, exposed alternately to direct or diffused solar light, may be preserved for more than fifteen months, on the condition of its remaining in contact with an azotized atmosphere completely deprived of oxygen. (4) It has been an error to attribute the changes which take place in chloroform to the presence of a certain amount of free chloral; the oxygen of the air suffices to produce them when the mixture of this gas and the vapors is exposed to insulation. (5) Chloroform may be preserved unchanged, even when submitted to the simultaneous influence of air and light, by the addition of a hundredth, a five-hundredth, or a thousandth part of ethylic alcohol. (6) The intervention of ordinary ether ($C_4 H_{10} O_2$) also proves entirely efficacious, since a thousandth part suspended the action of oxygen and light during several months (from April 4 to November 15).—*Medical Times*, February 28, 1885.

MEDICINE.

A CASE OF RECOVERY FROM CARBOLIC ACID POISONING.—MR. WILLIAM HUNTER records the case of a woman 47 years of age who, an hour previous to her admission to the hospital, had swallowed a wineglassful of crude carbolic acid while under the influence of liquor. Immediately after taking the drug, she experienced great burning pain in the mouth and throat, drank cold water in quantity and became unconscious in half an hour. On admission she was in a state of profound stupor, and quite unconscious; her face and ears were very livid; pupils mediumly contracted, and her lips were somewhat whitened, but not markedly so; breathing rapid and labored; carbolic acid in breath; pulse 120, soft and feeble, but regular. She could not be aroused, and the stomach was washed out by the stomach pump with a solution of washing soda. A quan-

tity of darkened, oily-looking fluid came away, which had an extremely strong odor of carbolic acid. About ten ounces of olive oil were then poured into the stomach, allowed to remain a few seconds and then withdrawn. The stomach was washed out with the soda solution three or four times. With the third washing came what appeared to be pieces of detached mucous membrane, but were merely pieces of darkened mucus. The symptoms increased in severity for about three hours, the breathing being stertorous; at the end of that time, however, the patient became restless and soon was able to sit up in bed and answer questions. She complained of great thirst, and drank eagerly of milk with the white of an egg beaten up in it. She vomited undigested meat smelling very strongly of carbolic acid. The bowels moved, with dark stools having a very strong odor of carbolic acid. The stomach at no time gave pain or uneasiness. The urine was smoky and dark for a day or two—no albumen or blood. The lips were swelled and œdematous, the voice husky. Recovery was uninterrupted, and in eight days she was discharged from the hospital.

It is probable that the quantity taken could not have been less than an ounce. Undoubtedly the condition of alcoholism had arrested digestion and diminished absorption, and the presence of the undigested pieces of meat protected the mucous membrane of the stomach from contact with the acid. A striking illustration of this diminution in the absorptive power of the stomach in such conditions is afforded by the case, related to Mr. Hunter by Dr. Affleck, in which a man, while very drunk, swallowed no less than twenty grains of morphia. After the development of all the phenomena of opium poisoning he ultimately recovered with the use of the stomach pump. Mr. Hunter considers that the supposed danger from the use of the stomach pump in cases of corrosive poisoning is probably too much exaggerated, and that its use is decidedly preferable to that of emetics, the administration of which always means a certain amount of delay.—*Edinburgh Medical Journal*, March, 1885.

The Treatment of Bromidrosis of the Feet.—Mr. J. S. Stewart praises highly Hebra's ointment for fœtid sweating of the feet, with or without excessive secretion, and gives his mode of its practical application. Hebra employs the following ointment:

℞. Olei lini.
Emplastri plumbi liquefacti, equales partes.
M. fr. ung.

This he directed to be spread thickly over a piece of linen large enough to cover the sole and sides of each foot,—both feet, in the first place, to be carefully washed and dried. Pieces of linen rag well covered with the ointment he directed to be placed between the toes, so as effectually to separate them and secure thorough application of the ointment. Over this the sock or stocking could be worn with a light new slipper, and the patient allowed to pursue his or her ordinary calling. This dressing to be repeated every twelve hours for ten or twelve days, the foot not to be wetted after treatment has begun, but wiped when necessary with a dry cloth, or washed with dry bran or other mealy substance, should any part become dirty or caked with old ointment, etc. To insure success, the whole of the skin of soles and sides of feet and toes must be tanned by the process and gradually thrown off as brown leathery exfoliations in from two to four weeks. All boots, shoes, slippers, etc., worn by the patient should be discarded; because if worn again the patient is reinfected in three or four months, and gradually becomes as bad as at first. Stockings or socks should be very carefully cleansed and disinfected by heat or by steeping in a hot solution of perchloride of mercury (1 in 1,000 of water) for several hours before being washed.

Mr. Stewart's application of this method is to have the feet thoroughly washed in hot water, then steeped for a few minutes in a solution of permanganate of potash of the strength of from four to six grains in the ounce of water. The feet are then dried, not to be again wetted until complete exfoliation of the tanned cuticle has taken place. Hebra's lead plaster ointment is then thickly spread on strips of cloth about 1½ inch broad, and the foot covered from the toes back over heel as high as the malleoli with these, arranged and applied like a scultetus bandage. Each toe should first be wrapped round with a strip of clean rag half an inch broad and thickly spread with the ointment. This dressing should be renewed every twelve hours with fresh rag and ointment, for a period varying from ten to sixteen days, according to the severity of the case and the thickness of the heel skin. In most cases the odor will be very much diminished by the end of the third day, and will not be perceptible by the ninth. The shedding of the skin takes place *pari passu* with the growth of the new cuticle, and may not be completed until the end of the third or even of the fourth week.—*Edinburgh Medical Journal*, March, 1885.

A Case of Sweating to Death.—Dr. Andrew Scott Myrtle describes the case of a hale, active, intelligent man, æt. 77, who, while in the full enjoyment of health on one day, on the next was taken with flying pains in the right hip, thigh and foot, for which he kept his bed for three weeks; there was no fever at all, and all the functions were performed regularly, but the pains were increased on the slightest movement. He obtained complete relief from occasional doses of the salicylate of soda (10 grains). About this time he began to perspire freely. The perspirations came on in a most peculiar way: suddenly every duct opened and the sweat poured out; this would go on for ten minutes or

ten hours, but invariably stopped as suddenly as it began, everything on and about him was simply saturated. The urine was healthy in all respects, and continued so till death; with all the loss of fluid by the skin the secretion of the kidneys was never affected in quantity. In a few days the sweat became most offensive, giving the same heavy smell as that given off by a horse after a smart gallop on a hot day. Oddly enough his son was attacked with all the symptoms of hay fever when he entered the room, just as he is affected on going into a stable or hay field; this smell was given off only occasionally, and chiefly during early morning. This condition of things continued for some twelve weeks, when his strength began to fail, and his breathing occasionally became labored; still he took his food, felt comfortable, performed all his functions, and passed good nights. At the end of the fourteenth week he sank from exhaustion, perspiring to the end. Before death he was as clear in his mind as he ever was.

The treatment embraced first, the salicylate of soda for the relief of the rheumatic pains, then arsenic, cinchona, and sulphuric acid during the day, with quinine and belladonna at bedtime, rubbing with warm towels, and sponging with a solution of salt, eau de Cologne, and vinegar once a day. As the arsenic appeared to disagree, Warburg's tincture was substituted for it. Ergotine was given in two three-grain doses at an interval of eight hours, and produced a toxicological effect but no therapeutic power. A dose of atropia, one-fiftieth of a grain, also acted toxicologically.

The cause, according to Dr. Myrtle, was from a paresis of the terminal nerve filaments which preside over the healthy function of the sweat glands and ducts, these filaments having become weakened by exposure to alternate heats and chills to which the patient had exposed himself for months in his open workshop with a gas engine. Dr. Dreschfeld, who saw the case in consultation, considered the lesion as located in the sweat nerve center, and that the sweating and aguish attacks were due to an alternate paralysis and irritation of that centre from the presence of rheumatic poison in the blood Analysis of the perspiration gave no useful information.—*Medical Press and Circular*, February 25, 1885.

EPIDEMIC ICTERUS.—Sürman, in the *Berliner klin. Wochenschrift*, page 20, January 12, 1885, describes an epidemic of icterus as occurring among the employés of an iron works and shipbuilding yard in Bremen. The works are situated on the Weser, stretching down to the river. The subsoil is sand, and has never been inundated. No phosphorus is employed in the factories. In the yard there is a well which has been used since 1845, whose waters have been ascertained from time to time to be chemically pure and wholesome. The closets are arranged on the pail system (Eimer system). All possible care is taken to insure their removal and disinfection by means of carbolate of lime. During the winter of 1883–4, 1,200 to 1,500 persons were employed at the works, of whom a few obtained board and lodgings in neighboring sheds, while the rest took their meals at their own homes, or brought their food with them in the morning. Until the years in question, no epidemic of icterus had ever occurred in this establishment.

At the end of October the first cases of catarrhal icterus occurred, which heralded the epidemic. In a month the cases had increased to 33. During December, 137 fresh cases were noted; in January, 14; in February and March, 5, and in April, 2; in all, 191 cases before the epidemic ceased. All these came under treatment; but, in addition, there were many cases too mild to call for medical aid. During the same period only a few isolated cases of catarrhal icterus were recorded in the town at large.

In all cases the jaundice was preceded by symptoms of a gastric catarrh which generally lasted for about eight days, but occasionally for weeks. Constipation was the rule, but diarrhœa was sometimes observed. When jaundice began, the subjective symptoms decreased in severity in most cases, but in some they became more grave. The jaundice usually established itself fully in the course of twenty-four hours. Constipation, when it had existed previously, gave place to a violent diarrhœa. Itching of the skin and yellow vision were observed—the former frequently, the latter seldom. In all cases there was more or less prominence of the epigastrium, which was tender to the touch. No marked enlargement of the liver occurred, nor was tumor of the gall bladder to be detected. The whole course of the disease was afebrile; in many cases there was considerable slowing of the pulse. The fæces, early in the attack, were clay-colored, but subsequently—in many cases in a few days—acquired their normal color, notwithstanding the persisting yellowness of skin and conjunctivæ. The urine presented the icteric coloration, but no albumen. The bile-color tests gave positive results, but bile-acids were not always detected. Only one case of cholæmia occurred, with severe head symptoms and deficient diuresis, and consequent ascites and anasarca. Even this patient got well in five months. No fatal case is known to have happened. The jaundice varied in different cases from light citron-yellow to yellow-brown, or olive. Some cases were over in eight to fourteen days; the majority lasted four to six weeks; and a few were even longer, and were characterized by great emaciation and feebleness. The only treatment attempted, in addition to regulation of the diet, was symptomatic.

As to the etiology of the epidemic, the only circumstance which was at once peculiar to this establishment and common to all the members of it, was a general re-vaccination, which took place on August 13th, 1883, in consequence of isolated cases of small pox having occurred

among the work people. Humanized glycerine-lymph was supplied for the purpose by a local chemist, who had obtained it from some third person. The usual vaccination lancets were used in the common fashion of incision. After every operation the instrument was cleaned in one per cent. carbolic solution. Most of the inoculations failed to take, so that even of those who subsequently fell ill of jaundice a majority had been re-vaccinated in vain. The success or non-success of the re-vaccination seemed to have no influence on the development of the jaundice. Of 1,289 persons re-vaccinated, 190 persons had jaundice. Of 87 persons re-vaccinated away from the works by other physicians, with other lymph, *no* person had jaundice. Of 500 people admitted to the works during the epidemic, after the period of re-vaccination, and not themselves re-vaccinated, *no* person had jaundice. Of those work people (few in number) who left the works for various reasons immediately or soon after the general re-vaccination, themselves having been re-vaccinated, 9 persons are certainly known to have had jaundice.—*Medical Chronicle*, Mar., 1885.

On the Transmissibility of Malarial Infection.—Mariotti and Ciarrochi (*Lo Sperimentale*, p. 623, December, 1885), have been experimenting with the blood of malarial subjects injected into the systems of patients who had either not had malaria, or had suffered from it so long a time previous that no trace of the disease remained. The precaution was taken of registering their temperatures for a month before the experiments commenced, and the blood of the subjects of experiment was submitted to accurate microscopic and spectroscopic analysis.

The arms of the malarial subject, and of the experimental subject having been first washed with a weak solution of corrosive sublimate, a Pravaz syringe, sterilized at a temperature of 150° C. and kept up to the moment of experiment, sealed in a glass tube, was used to withdraw the malarial blood, which was then injected into the experimental subject, first into the subcutaneous tissue and then into a vein. The quantity of blood injected was each time about a gramme, taken either in the apyretic state preceding an attack, or in the febrile access. In the choice of blood those cases only were taken where the alterations in the blood were very distinct.

The experimental subjects were: (1) A youth, aet. 16, suffering from transverse lumbar myetitis. (2) A man, aet. 32, affected with sclerosis in patches. (3) A man, aet. 47, who also had sclerosis in patches. These three had not previously had malaria. (4) A man, aet. 60, affected with hemichorea. This man had had malaria ten years before, but not since. The subcutaneous tissue was the first site of injection, but no results following, the injections were made direct into a vein. In all, malarial fever, amenable to quinine, followed, though not perhaps from the first injection of malarial blood.

The conclusions arrived at were: (1) Malaria is transmissible from man to man by inoculation of malarial blood. (2) So far as these cases go, it would appear that subcutaneous injection is less effective than intravenous. (3) The quantity of blood injected should amount to at least one Pravaz syringeful. (4) In whatever period of malaria the blood is withdrawn, fever is produced in most instances. (5) The rapidity with which the induced malady appears depends often on the quantity of blood injected, and on the individual resistance of the experimental subject. (6) In the blood of the subjects of induced malaria the characteristic alterations of malarial blood can be made out in a relatively short time. (7) The induced type of fever is often that of the inducing, not only in a clinical, but also in a therapeutic sense.—*Medical Chronicle*, March, 1885.

On the Musical Sounds of the Heart, and the Mode of Development of Pseudo-Cardiac Sounds.—O. Rosenbach (*Journal de Médecine de Bruxelles*) describes the rhythmic musical sounds which are audible over the region of the heart, as being either cardiac (endo- or pericardiac) or pseudo-cardiac. These last come from the relations of the heart to the neighboring organs.

The cardio-pulmonary sounds are frequent; they are dependent upon currents of air produced in that part of the lungs which is on a level with the apex of the heart, and of the left ventricle, and determined by the changes in volume of the heart and the movements of its apex; they have a whistling, blowing, or rattling sound (*sifflant*, *soufflant*, *râlant*), (*schlürfend*, *hauchend*, *pfeifend*). They are characterized by their inconstancy; a modification of the respiration (forced inspiration and expiration), cough, change of position, and pressure exercised on the chest modifies them and causes them to disappear.

The pseudo-cardiac sounds may also originate in the veins (right jugular vein, innominate vein), continuous sounds being produced with increased or diminished rhythm. When they are of a certain degree of intensity, they are audible at the precordial region (blowing and buzzing sounds, rarely whistling). They are ordinarily systolic; the diastolic sounds are produced ordinarily at the commencement of the diastole; by the horizontal posture, the arrest of respiration, or by the compression of the jugulars in the neck, these sounds lose their intensity or cease altogether. The writer has sometimes heard pericardial musical sounds of a whistling character; they were dependent upon deposits on the smooth surface.

As to the musical noises which originate in the cavities of the heart, the writer considers as problematical their production by an abnormal arrangement of the tendons; and that they are dependent upon perforation of the arterial

valves, or upon excrescences which transform the openings into simple slits like the openings of a flute on the smooth surface.—*Archives Médicales Belg.*, January, 1885.

SURGERY.

TORSION OF ARTERIES.—Professor Tillaux, in a recent clinical lecture at the Hotel Dieu, reported in the *Gazette des Hôpitaux* for February 10, explained his reasons for his great partiality to torsion as a means of preventing hæmorrhage: "I have employed torsion since 1871, and, as you may suppose, in the various hospitals to which I have been attached I have applied it to a very great number of arteries of all sizes; and this long practice of it has only served to confirm my early impressions. Am I, then, opposing the ligature in wishing to substitute torsion for it in all and under all circumstances? Not at all. The ligature is an excellent and a precious means of hæmostasis, but torsion is a still better, at least in my opinion. But, supposing the two procedures to be of equal value, is it nothing, then, to be in possession of two methods in place of one for rendering us aid? The only instrument which I employ differs only from the ordinary torsion forceps by having longer and broader teeth, so that it may be adapted to the calibre of all arteries, even the largest. The extremity of the artery being exposed and seized as if to apply a ligature (but seized in its entire breadth), I twist this until the extremity is detached—the manœuvre of the ligature, in fact, short of the thread. Torsion so executed is still more simple than the ligature; and suppose a surgeon without assistance, in the country, for example, or having to do with a very deeply situated artery, torsion, I do assure you, would prove a great resource to him. What is the mechanism of hæmostasis by means of torsion? It is most simple. After a number of twists, varying according to the size of the artery, the inner and middle coats of the vessel are torn, the edges of the division approaching and touching each other, and completely excluding the lumen of the artery, in the same manner as the sigmoid valves do that of the aorta. The external coat has not yielded, and the torsion is continued until it is detached, the twisted artery then terminating in a kind of small corkscrew, which also contributes to the obliteration of the vessel. Does torsion confer as great a security as the ligature? As regards primary hæmostasis we may, perhaps, reply that the ligature affords most security. The torsion may have been incomplete; that is, not comprising the whole breadth of the walls of the vessel; the middle coat may, perhaps, have undergone change and become deprived of its retractile properties. But, observe that this is a point of but small importance, for if the hæmostasis is not complete you see it at once, and at once resort to the remedy, just as when a ligature has been badly applied. But when primary hæmostasis has been secured, does torsion give more security against secondary hæmorrhage than the ligature? I affirm that it does. In order that this may be produced, the artery must untwist itself. First, it is improbable that an artery which has remained twisted during the duration of the dressing should afterward untwist. But I add that this is impossible, for physics teaches us that when an elastic body is made to exceed the limits of its elasticity it is powerless to return to its former condition. Now, the elasticity of the middle coat is not a vital property, but a property of the tissue which we can bring into play just as well in the dead body as in the living, as I have demonstrated by a number of experiments made at Clamart. When you remove one of Esmarch's tubes the blood is precipitated into the artery and strikes against the twisted end. The retraction of the two arterial coats opposes the issue of the blood, for no clot has yet formed. Suppose that a ligature became detached under these conditions, that is, before the clot has formed, or is insufficient, should we not have secondary hæmorrhage? Immediately after the operation the clot commences to form at the twisted end, so that it is only rational to believe that if hæmorrhage is not immediately produced at the twisted end of the artery, when no clot exists, it will not be produced ulteriorly when a clot has become developed. Strong in the belief in the theory which I have summarily explained to you, and in a practice now a long one, I affirm that torsion of arteries is an absolute protection against secondary hæmorrhage, which constitutes its advantage over the ligature."—*Medical Times*, February 28, 1885.

ACUTE PANCREATITIS IN CHILDBED.—DR. R. HAIDLEN relates the case of a primipara, thirty-three years of age, who had suffered during pregnancy from gastric disturbances and headache, and during the latter part of this period from severe colic and slight symptoms of peritoneal irritation. Owing to weak labor pains delivery was effected with the forceps. During the following three weeks the progress of the case was normal, but at the end of this time there were occasional hæmorrhages, and several attacks of pain in the gastric region. The last of these was very severe and accompanied by vomiting. There was no fever, the pulse was 100 and regular. There was great tenderness on pressure over the pit of the stomach. The intellect was unimpaired. The urine was voided normally, but in small quantities; the bowels did not move. Finally the pain in the epigastrium became very severe, meteorism set in, the extremities became cold, and the patient died. At the autopsy the pancreas was found to be enlarged in all its dimensions and of a brownish-red congestive color, the result of acute inflammation. There was no marked peritonitis, and the other organs were normal.—*Schmidt's Jahrbücher*, January 29, 1885; *Medical Record*, April 18, 1885.

THE
Journal of American Medical Association.
PUBLISHED WEEKLY.

THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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THE EXTIRPATION OF THE THYROID BODY.

Notwithstanding the amount of labor that has been expended upon the subject, but little is known as yet concerning the functions of the thyroid body. It has been classified among the blood-forming glands, and it is admitted by some that it may perform the functions of the spleen after that organ has been extirpated. Kocher, Reverdin, Baumgarten, and others have observed that extirpation of the thyroid gland is followed, in the human being, at a more or less late date, by a chain of peculiar symptoms to which they have given the name cachexia strumipriva; it is characterized by a semi-idiotic state, which is almost always associated with anæmia. According to Reverdin, however, this condition tends to disappear in time.

The pathogenesis of cachexia strumipriva is variously explained. Reverdin, and those who follow him, attribute the symptoms to some alteration of the great sympathetic; that is to say, they hold that the thyroid body represents an important centre of action in vaso-motor innervation. Kocher and Baumgarten hold that the symptoms are due to the reduction of the amount of oxygen inspired, which eventually causes disturbances in the cerebral circulation. The obstruction to the entrance of the proper quantity of oxygen is purely mechanical, being caused by atrophy or softening of the trachea. But the question is still unsettled; and with the present want of correct information it is not likely to be definitely determined at a very early date.

Much experimental work has been done in this field. According to Zesas, whose observations were in accord with the clinical observations of Credé, the function of this gland is supplementary to that of the spleen; as would be supposed, therefore, an animal cannot undergo extirpation of both these glands with safety. Tauber and Tizzoni, however, deny that there is any physiological relation between these two organs.

SANQUIRICO and CANALIS have recently published the results of their experimental work upon the relations between these organs, and it seems that the results obtained by them go to confirm the statements of Tauber and Tizzoni. They have as yet published only a preliminary communication, giving the results obtained by experiments on thirteen dogs. In seven of these both lobes of the thyroid were extirpated at the same time; in two both lobes were removed at intervals of from six to twenty days; and in four a small portion of the gland was left. Their results may be stated as follows: When both lobes were removed, either from young or adult animals, the operation having been performed with all possible precautions both to prevent death and to obtain union by first intention, the animals died within from four to sixteen days. Death was almost invariably preceded by an unvarying chain of symptoms; after about twenty-four hours, or longer in some cases, the dogs commenced to present the following phenomena: an unsteady gait, refusal of food, difficult deglutition even when attempts were made to swallow liquids. At the same time, or later, and not in all cases, there were dyspnœic symptoms, with moaning and loud respiration, which sometimes persisted until death. Tracheotomy was found to be unavailing in relieving the dyspnœa. There was great somnolence, the dogs were very restless, making abnormal movements of the head. At a still later date there were muscular tremblings, convulsions which were general or in the form of partial clonic contractions of the limbs, commencing in the posterior limbs; they were either spontaneous or excited by repeated stimulation. In one case the convulsions took the form of tetanic contractions with trismus and opisthotonos.

The locomotion of the animals was very peculiar: they wabbled in their gait as though affected with vertigo, so that they could not walk in a straight line, but described arcs of a circle, and finished by falling to the ground. At this time

their disquietude was always greater; in walking they invariably ran against obstacles placed in their crooked path, as though they were unable to control their movements. As a rule the animals neither ate nor drank for several days before death. In three of the cases a considerable fall of temperature was noticed just before death; in none of the animals was there an elevation of temperature. Artificial alimentation seemed to have no effect whatever on the progress of the condition. In some of the cases purulent conjunctivitis developed, complicated in one case by a perforating ulcer of the cornea; whether this was due to the condition itself or to external influences it was impossible to determine. Examination of the blood revealed variable modifications, perhaps physiological in some cases, which were proportionate to the number of morphological elements. Careful examination of the urine gave entirely negative results in every case.

The autopsies showed marked anæmia of the white and gray substance of the brain, with a more or less marked œdematous state. In some cases there was great congestion of the liver and dilatation of the mesenteric vessels, which were full of blood; in one case there were small punctiform extravasations of the intestinal mucous membrane. It was impossible that these phenomena could be due to the absorption of septic material, or to alterations of the vagi and recurrent nerves by irritations dependent upon the operative procedures; for the same phenomena were observed in those cases in which healing was by first intention.

Sanquirico and Canalis, in summing up the results of their experiments, feel justified in drawing the following conclusions: 1. Total extirpation of the thyroid is always fatal in dogs, whether the spleen has been removed or not; 2. Incomplete thyroidectomy is practically followed by negative results; 3. There are no functional relations between the thyroid gland and the spleen; 4. The fatality of total thyroidectomy cannot be attributed to quantitative modifications of the blood elements, since they are neither constant nor sufficiently severe; 5. While these experiments give no data as to the function of the thyroid gland, they show that it has no hæmatogenous action, and cannot, therefore, be considered as a substitute for the spleen, the most that can be said is that it seems to occupy an important place in the animal economy, and in all probability is in intimate relation with the central nervous system.

This paper had already been written when Schiff published his experiments on the same subject; it will be seen that these experimenters, working independently, arrived at practically the same results.

IS TRUE CROUP DIPHTHERITIC?

Such is the question which for years has proved a veritable apple of discord among pathologists and clinicians, and Virchow has recently cast it anew into the midst of the Berlin Medical Society. The name of this renowned pathologist lends such weight to his opinions that we subjoin some abstracts from his paper, as reported in the *Berliner klinische Wochenschrift*, No. 9, March 2, 1885, in order that our readers may know where he stands in regard to this important subject.

In 1847, he announced the proposition that, if one would divide the affections of the mucous membranes into comprehensive groups, he must distinguish three definite and distinct anatomical conditions, viz.: catarrh, croup, and diphtheria.

Diphtheria is a process of mortification, seated in the substance of the tissue itself, and therefore creates no false membrane upon the surface. Yet, when apparently throwing out an exudation, it does so only by causing an exfoliation of the surface, and loss of substance in every case of such exfoliation. In a word, in most favorable cases, this process occasions ulcerations of the part affected. This view, which he still holds, occupies a foremost place among those conclusions at which he has arrived from observation.

Concerning the cause of this morbid process he holds the view that this is a parasite. He is of the opinion that these parasites have never been observed in any considerable numbers in croupous membranes. They first appear in the superficial layers, rapidly penetrating into deeper parts, not only into the submucous, but even into the muscular layers, or still more deeply. They thereby cause extensive irritation and swelling. It must not be forgotten that their starting point is in the surface, whence they work their way into the subjacent parts. Hence the assumption is easy, that instead of proceeding from the blood, as was once held, they are the product of contagion.

In contrast to this condition are the fibrinous exudates that merely rest upon the surface. Huge strips of false membrane that are often detached from the inner surface of the trachea and larynx, never leave an ulceration behind.

Here, therefore, are two entirely distinct processes. One is a something which has its seat on the surface, without, however, the surface taking any intimate part in the process. This something becomes detached and cast off, yet leaves no trace in the shape of an ulceration. The other is a something that has its seat in the superficial tissues, causes their death and consequent exfoliation, and leaves a loss of substance in its wake.

However, in taking the ground that croup and diphtheria are distinct processes, he would not assert that there may not be a diphtheritic laryngitis; but he would assert that in diphtheritic croup, there is no false, that is, fibrinous membrane. To be sure, shreds of tissue may be found which at first glance look like shreds of false membrane. Yet on careful inspection, these are seen to be portions of necrosed and exfoliated mucous membrane. The evidence of necrosis and exfoliation of tissue is that on which he would base a differential diagnosis. If one would not accept this, he knows of nothing else whereupon to base a difference.

These are emphatic utterances, and leave no doubt as to Virchow's position. The controversy concerning the nature of croup and its relations to diphtheria has been waged long and hotly, and is not much nearer settlement now than when it first began. In the last century English observers were already at variance on this point. Home and Johnstone both wrote treatises upon it, maintaining the non-identity of the two affections. In the early part of this century, Bretonneau strenuously supported the view that they were manifestations of one and the same morbid process. French opinion has seemed in the main to indorse the conclusions of Bretonneau, although the opposite has been ably maintained by MM. Bricheteau, Desruelles, Emangard, and Blaud, and in the prize essays of MM. Vieusseux and Jurine of Geneva. Likewise in Germany, both theories have found ardent adherents. Niemeyer, Oppolzer, Letzerich, and others have coincided with Virchow, while Wagner asserts: "there is no sharp line of distinction between croup and diphtheria, but that in both the membrane is formed by a peculiar metamorphosis of the epithelial cells." Oertel and Klebs regard the two affections as expressions of the same morbid cause. Steiner, in *Ziemssen's Cyclopædia of Medicine* says:

"The attempt to distinguish croup and diphtheria as two entirely distinct diseases has been unsuccessful. . . . Indeed there are many good reasons for supposing that these two affections are only varieties and modifications of one and the same process."

In England, opinion is still divided. West and Reynolds' Systems of Medicine uphold the non-identity of the two; while Eustace Smith, in his admirable work on "Disease in Children," expresses himself decidedly as of the opinion that in croup, diphtheria has preceded it, although it may not have been detected. In our country Meiggs and Pepper coincide with the English writer just mentioned. On the other hand, Austin Flint, Sr., J. Lewis Smith, and others take the opposite ground.

Thus it is evident how diverse are the conclusions of the ablest minds of all countries. One party maintains that membranous or true croup is a local inflammatory process, always produced by exposure to cold or wet; whereas the other is as positive that it is diphtheritic. It would seem that the Latin proverb, *via media, via recta*, is particularly applicable to this discussion, and that in some instances croup is primary and independent of diphtheritis — that in others it is secondary to that disease.

SANITATION BY FIRE.

In the *Sanitarian* of February, 1885, is an article on "The Ultimate of Sanitation by Fire," by Col. J. M. KEATING, of Memphis. Sanitation by fire is a matter which interests hygienists in all parts of the world; it seems to be the ultimatum of the disposal of waste as a necessity, and as the means of thoroughly disposing of the decaying material in crowded localities it merits the greatest attention. The author of the above-mentioned paper proposes to prove that when people do not complain of polluted water, as is the case in most cities, they do of sewer gas; that when they have a reasonably good system of sewerage, as that of Waring, they have the question of the disposal of the sewage to confront: that rivers are being filled with sewage, which kills the natural inhabitants thereof and pollutes the water for a great portion of the population; that, as privies and cesspools are to be

condemned because they saturate the soil, sewers are to be condemned for the same reason in some cases, and in others because they throw off sewer gas into dwellings and contaminate rivers and docks; in a word, that all present plans of disposal of sewage are defective in that they do not deal with the final disposition of the material, and that cremation is a "finality of sanitation, and that all other methods are so many makeshifts."

Colonel Keating devotes about ten pages of his article to a review of the sanitary state and sewage disposal of some of the principal cities of the world, and most of them make a very poor show as regards drainage and the disposal of waste. It is sufficient to show, however, that excremental matter, whether as sewage or poudrette, or in any of its diluted or chemically prepared forms, is dangerous to health. "Fire is the only means of utterly destroying it and solving the question of its final disposal beyond any power of harm." Further than this, he argues strongly in favor of cremation of the dead; not only should the privy, the cesspool, the midden, the sewer, and all other methods for the disposal of the waste of the living be abolished, but also the graveyard and the cemetery as well. "The crematory must take their place. Within two centuries the death rate of London has been reduced by successive steps in sanitation from forty-two to twenty-two per one thousand." This is the result of incomplete methods of disposal of waste; it is not difficult to imagine what would be the result could the Shaw system of cremation be carried out as regards everything that may entail danger to health. It would be well were some of our cities in this country to erect a crematory similar to that now in use in London, constructed in 1883 by Mr. George Shaw, for the destruction of the refuse and street wastes of that city. Not only would it be far less expensive in the end, but it is scarcely possible to think that the health of the city would not be better by far. The description given by Colonel Keating of this crematory is very interesting.

At the close of his paper the author concludes that the cremation of excreta and all household and street wastes would preclude the possibility of the return of such wastes in any deleterious form, as is now the case everywhere; it would save to the cities two-thirds of their present water supply, and thus increase the quantity for personal sanitation; it would put a stop to soil saturation and sewer gas; would reduce scavenging to the minimum expense, and would obviate the nuisances of defective plumbing. In a word, there is not a question directly or indirectly connected with these matters which it would not solve.

PLASTIC OPERATIONS FOR SPINA BIFIDA.

At the meeting of the Clinical Society of London, on March 27, MR. MAYO ROBSON, of Leeds, described four cases of spina bifida on which he had operated, exhibiting two of the patients. The first case upon which he operated was described in the *British Medical Journal* for March 24, 1883; it died one year after the operation from teething convulsions. At the site of the tumor there was only a linear scar. Of the cases presented to the society one was that of a sixteen-year-old girl, who had had the tumor tapped repeatedly, and at the time of the operation was apparently sinking from exhaustion. After reflecting the skin by a crucial incision, Mr. Robson excised the sac, and the cavity was drained for a few days. The patient was discharged cured at the end of twenty-four days, with the wound quite healed, and only a scar where the tumor had been.

The second patient shown was a child, aged seven; the skin was dissected from the sac, and the redundant sac and integument removed; the meninges were sutured with catgut, and the skin with wire. The patient was discharged cured in thirteen days.

All of these operations were performed under strict antiseptic precautions, a eucalyptus atmosphere being used instead of the usual spray. Mr. Robson called special attention to the principle of closing the meninges by bringing together two serous surfaces, as in peritoneal surgery; to the great importance of employing the strictest antisepsis; to the value of this method in cases in which other forms of treatment are not available, as when the sac is thin or the opening into the spinal canal is large; to the possibility of transplanting periosteum, and its capability of surviving; he thought that periosteum from a recently amputated limb would give good results. In one case the sac was acutely inflamed, but complete removal, with efficient drainage, effected a cure.

Mr. Robson has given us the most sensible operation yet proposed for the treatment of

spina bifida; certainly the method of attempting to cure the affection by means of injections is not to be compared to it, and there is no apparent reason why it should not be successful in a large majority of cases, provided his suggestions be carried out. When the spinal cord or the nerves are blended with the sac, which cannot always be ascertained until the skin is dissected from the membranes, he advises excision of portions of the redundant meninges at one or more points between the nerves, replacing the nervous structures in the spinal canal, and bringing over the skin cover, keeping up free drainage between the membranes and integument. Should this not be feasible, the membranes may be punctured, and the collapsed sac, with the nerves intact, placed in the canal; the skin covering being made as before. Of course a silver or leather shield should be worn over the site of the operation, both to protect the parts from injury, and to prevent stretching or giving way of the scar.

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF THE STATE OF TENNESSEE.

Fifty-second Annual Meeting, April 14, 15, and 16, 1885.

The Medical Society of the State of Tennessee met in annual session in the Hall of Representatives in the Capitol at Nashville, on April 14, the PRESIDENT, D. D. SAUNDERS, M.D., of Memphis, in the Chair.

A number of valuable papers were read; among others one on the

CAUSATION OF CHOLERA,

by DR. J. W. PENN, of Humboldt, in which the position was taken that no one ever had cholera who used pure cistern or free-stone water.

DR. THOS. L. MADDIN, of Nashville, agreed with the essayist, and gave the experience of Nashville as proof of the truth of his remarks. In Nashville cases were limited to those who used hydrant (river), well, or spring water, whilst those who used pure cistern water did not take the disease. He did not hold that impure water caused cholera, but that it prepared the system to receive the poison; impure limestone water so impairing the vital forces that they do resist the *materies morbi* when introduced.

A paper by DR. R. F. EVANS, of Shelbyville, on

MALARIAL REMITTENT FEVER

provoked an animated discussion.

DR. D. D. SAUNDERS, of Memphis, maintaining that the term *Typho-Malarial* fever should be abolished.

DR. O. H. MENEES, of Nashville, held that it was a good and descriptive term.

DR. C. C. FITE, of Nashville, held that the fever under consideration was not typhoid or malarial or typhoid-malarial fever, but a distinct disease, due to decayed vegetable matter; and that it had this as its specific cause, just as there was a typhoid germ, and a specific cause for malarial fever arising from some unknown product of vegetable decay caused this type of fevers. He spoke of cases in his practice which supported the theory, and referred to published cases of the same character.

A resolution was adopted by the society memorializing the president to place the

EPIDEMIC FUND IN THE HANDS OF THE NATIONAL BOARD OF HEALTH,

and indorsing the action of other medical and sanitary bodies in this matter.

DR. J. W. SHARBER, of Spring Hill, exhibited a specimen of an

EXTRA-UTERINE PREGNANCY,

in which an eight-months fœtus was carried for twenty-nine years.

Several committee reports were made; among others one in regard to the failure of the medical bill before the recent legislature. Tennessee has no medical law of any kind, and the profession not being united on the question, it failed for want of a constitutional majority.

One of the features of the meeting was a *Calisthenic dumb-bell and wand drill* at Ward's Seminary, which was much admired by the physicians present. Physical education has been too much neglected in the South, and it is gratifying to find that this large and prosperous female seminary not only cultivates the mind and morals, but the body also.

Memphis was selected as the place for the annual meeting in 1886.

The following were elected

OFFICERS FOR THE ENSUING YEAR.

President, Thos. L. Maddin, M.D., of Nashville.

Secretary, C. C. Fite, M.D., of Nashville.

The following were appointed

DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION.

Drs. Van S. Lindsley, Duncan Eve, C. C. Frost, Deering J. Roberts, W. M. Vertrees, J. B. W. Nowlin, W. F. Glenn, W. D. Haggard, J. W. Maddin, Jr., J. F. Grant, C. S. Briggs, and O. D. Menees, of Nashville; D. D. Saunders, W. B. Rogers, J. E. Black, and W. W. Taylor, of Memphis; J. B. Murfree and J. H. Washington, of Murfreesboro; N. F. Raines, of White Haven; W. D. Somers, of Colliersville; R. F. Keys, of Eagleville; F. B. Sloan, of Cowan; W. F. Clay, of Bellbuckle; R. F. Evans, of Shelbyville; W. Harris, of Somerville; J. W. Sharber, of Spring Hill; W. B. Townsend, of South Pittsburg; T. K. Powell, of Dancyville; A. J. Swaney, of Cas-

talian Springs; A. J. Walker, of Friendship; A. B. Tadlock, of Knoxville; T. J. Haffel, of Trenton; A. J. Welden, of Paris Landing; W. H. Whittemore, of Haleys; I. F. Wright, of Clarksville; and D. E. Nelson, of Chattanooga.

STATE MEDICINE.

MICHIGAN STATE BOARD OF HEALTH.

The annual meeting of the Michigan State Board of Health was held at its office in Lansing, Mich., April 14, 1885.

THE MEMBERS PRESENT

were John Avery, M.D., President, Arthur Hazlewood, M.D., C. V. Tyler, M.D., Prof. V. C. Vaughan, M.D., and Henry B. Baker, M.D., Secretary.

This being the annual meeting, the

PRESIDENT'S ADDRESS

was the first order of business.

The PRESIDENT said that he had prepared no formal address. He thanked the members for the many courtesies shown him during his administration. He had no change of policy to recommend to the Board; no marked change, he thought, is desirable. The work is well understood, and is in a satisfactory condition. The Board must be governed somewhat by emergencies, as they arise. He could congratulate the Board on what it had achieved. He thought it would be wise to continue holding sanitary conventions in different places in the state. He spoke of the probable advent of Asiatic cholera, and thought that it might tax the Board to its utmost. The Board had done all it could to prepare to resist the disease, but should be ready for further action. If the bill before the legislature becomes a law, the duties, as well as the powers of the State Board of Health to prevent and restrict that disease will be increased. It would be desirable to continue to advise police regulations in cities, adapted to preventing unsanitary conditions and the introduction or spread of cholera; and the health officers of cities, villages, and townships of the state, especially as they are just now being changed, many being entirely new in that office, should be instructed in regard to their duties.

The SECRETARY read a report of

THE WORK OF THE OFFICE

during the past quarter. Of the 760 pages of copied letters sent out, 153 pages were modified circular letters to local health officers in regard to prompt action to restrict contagious diseases. In connection with those, about 10,000 copies of the documents on the restriction and prevention of certain contagious diseases, and on the duties of health officers, have been sent to health officers for distribution to neighbors of families in which such contagious diseases have been reported.

Since the last meeting of the Board, the outbreak of smallpox at South Boardman had been suppressed. During the past quarter there had been one case of smallpox at East Saginaw, two cases in Grand Rapids (confined to one house), the first of which was a commercial traveller, who thinks he was exposed on the train between Boston and Grand Rapids. About the time he was exposed it is known that a man having smallpox passed through Michigan on the Michigan Central railroad, from Ontario to Chicago, *en route* for Manitoba. At Battle Creek there have been four cases, with one death, from smallpox, the contagion of which is supposed to have come from a brakeman on the Chicago & Grand Trunk railroad, who stopped with a family in Battle Creek while he was slightly sick, and who thinks he contracted the disease on the train near Chicago. Two members of this family in Battle Creek visited friends in Bellevue, in Eaton county, and smallpox broke out in the family in which they stopped. Five cases and one death have occurred there; but thus far the disease at Bellevue has been confined to the one family. All the members of the family were vaccinated with virus on points from Fond du Lac., Wis., as soon as it was known they had been exposed; but in three cases the vaccination did not work. In one case in which the vaccination worked, the person has shown no symptoms of the disease.

At the last meeting of the Board, the subject of proposed legislation relative to diseased animals, and relative to a standard for milk, had been referred to the committee on legislation and diseases of animals jointly. The Secretary reported considerable time and care had been devoted to the perfecting of three bills relating to those subjects, which had been introduced into the house of representatives this session.

DANGEROUS ILLUMINATING OILS.

The SECRETARY reported that during this session of the legislature there had been considerable lobbying to get the legislature to lower the standard test for dangerous oils, and to do away with the use of the tester adopted and recommended by this Board. The claim of the lobbyist who came to this office was that the change was wanted in the interest of manufacturers of small quantities of oil who, he claimed, could not now compete with the Standard Oil Company. Just how lowering the test would favor those particular oil manufacturers more than it would the Standard Oil Company, he did not make clear. It has been rumored here that the reason for changing from the tester now used was to enable a dealer in a patent apparatus to sell his tester; but as this change is advocated by the same person who is laboring for a lowering of the test, it seems more reasonable to believe that the main reason is that the proposed apparatus does not detect the explosive vapor at so low a degree of temperature as the present tester. From experiments it seems that simply by the

proposed change in the tester the standard would be lowered about ten degrees.

A committee was appointed by the Sanitary Convention held at Lansing, March 19 and 20, to consider this subject. The committee consisted of Frank Wells (ex-President of the Michigan Pharmaceutical Association) chairman, H. D. Bartholomew, C.E., (ex-city engineer) and Professor David Howell, Superintendent Lansing city schools. April 2, this committee went before the Senate Committee on State Affairs, and gave a verbal account of the results of their investigation, which was, in brief, that the test ought not to be lowered; that the "Foster Cup" was unreliable and ought not to be substituted for the Michigan State Board of Health tester; that if substituted for the Michigan State Board of Health tester it was equivalent to lowering the test by about ten degrees.

By a vote of the Board this report concerning illuminating oils was ordered published, together with a resolution to the effect that there is not now sufficient evidence of the safety of such illuminating oils to warrant the lowering of the test now required for illuminating oils in this state. This resolution was adopted unanimously.

The Secretary read the report to this Board by SURGEON GEORGE M. STERNBERG, U.S. Army, now at Johns Hopkins University, on his

EXPERIMENTS ON LOWER ANIMALS IN FEEDING AND IN MAKING INJECTIONS OF CULTURE-FLUIDS OF POISONOUS CHEESE

with the view of learning the nature and source of the poison.

DR. VAUGHAN made a verbal report of his

CHEMICAL EXPERIMENTS WITH POISONOUS CHEESE.

He had certainly secured in a crystalline form a small quantity of one poison from poisonous cheese which would produce in man symptoms common to cheese poisoning. There might be other poisons in poisonous cheese. He had not yet fully studied the poison he had obtained. It gave reactions like those of a ptomaine. It was probable, he thought, that butyric acid had something to do with the sickness caused by cheese; there are different kinds of butyric acid, and the absence of the odor of rancid butter would not prove the absence of butyric acid.

The subject of

SANITARY SURVEYS OF PREMISES

in cities and villages was thoroughly discussed. It was thought best that the blanks used should be uniform, but that each city or village should provide its own blanks. The committee was directed to make a sample blank to be recommended for such work, and be sent with a resolution, which was adopted as follows:

Resolved, That the Michigan State Board of Health earnestly recommends to the boards of health of the cities and villages in Michigan that they make a sanitary survey of the territory under their jurisdiction, on blanks of which a sample is sent herewith; and to adopt such measures as the sanitary surveys may prove to be necessary to place the cities and villages in a good sanitary condition.

Upon ballot for president of the Board for the ensuing term of two years, DR. JOHN AVERY, of Greenville, was reëlected.

It was decided to demand from health officers of all villages

WEEKLY REPORTS OF SICKNESS

under their observation.

Under the law requiring the approval by this Board of text books on physiology and hygiene, and the effects of alcohol, etc., before they are used in the schools of the state, the Board approved the following-named book: "Elementary Physiology and Hygiene.—The Human Body and Its Health. A Text Book for Schools, Having Special Reference, Etc." By William Thayer Smith, M.D.

The following-named books were conditionally approved for use in the schools, with the qualification that they contained errors which should be corrected: "Practical Work in the School Room. Part I.—The Human Body." By Sarah F. Buckelew and Margaret Lewis; "The Essentials of Anatomy, Physiology, and Hygiene. A Text Book for Schools and Academies." By Roger S. Tracy, M.D.

DR. VAUGHAN reported that he had attended the meeting of the State Dairymen's Association, at Grand Rapids, as a delegate of the Board, and talked to the meeting on the subject of cheese poisoning, especially in regard to his discovery of the poison.

DR. VAUGHAN also gave an account of the work of

THE COMMITTEE ON DISINFECTANTS

appointed by the American Public Health Association. He is a member of the committee and, as such, has done considerable work, and had attended a meeting of the committee in Baltimore. He thought the report of the committee, when published in full, would be a very valuable document in practical public health work. The preliminary report of the committee is just published.

DOMESTIC CORRESPONDENCE.

PLACEBOES AGAIN.

DR. MURDOCH'S REPLY TO THE AUTHOR OF "THE PHYSCIAN HIMSELF."

D. W. Cathell, M.D., Author of "The Physician Himself":

DEAR DOCTOR,—Many thanks for your letter of April 2; its publication in the JOURNAL enables me to reply through the same channel, and also gives me an opportunity to speak of other matters contained in "The Physician Himself," wherein I differ with you.

I have so fully expressed myself upon the subject of placeboes in the address published in the JOURNAL of March 28th, that it is only necessary now to refer to the case of Willie Brown; and as this letter may be seen by some readers who did not see your letter, I here reproduce the history of his case as given by you, "*verbatim et literatim*": "I was recently called upon to treat Willie Brown, a stout twelve-year-old boy, one of whose companions had died of traumatic tetanus. The patient had become so overshadowed with a dread of that disease that he was abstracted from everything that formerly occupied him, had become wholly unable to study his lessons, had quit school and spent most of his time in thinking about his affection, and was in constant fear that he might get a scratch or wound, and—lockjaw.

"His family and friends had exhausted their arguments and assurances before I saw him, and I soon found that mine were equally unavailing, the patient continuing to weep and grow worse. Finally his father, an intelligent gentleman, suggested that I give him something or another that he would regard as a preventive of the disease. I presented to him thirty or forty of the very globules referred to in the criticism (mint water or anything else would have answered equally well), with instructions to swallow one at exactly 8 o'clock, morning and evening. His mind was at once relieved, and before all were taken, his thoughts had turned to other subjects."

Now, my dear doctor, of course you did not think that Willie would have traumatic tetanus, or any other form of tetanus. Your only object in giving the placebo was to quiet the apprehensions which he had, that he *might* receive a wound, and that if so, he *might* have traumatic tetanus. Now, it does seem to me that in a boy, twelve years old, of average intelligence, you might have been able to quiet his nervousness without resorting to this procedure. The only reason which I can conceive of for failure to convince him by words of the groundlessness of his apprehensions is the probability that you could not secure his confidence. The idea of giving him some medicine you say was first suggested by his father. I am inclined to think from this fact that the father had been in the habit, as many parents are for the purpose of accomplishing their ends, of practising little deceptions upon Willie ever since he had been a baby, and that Willie had at last found him out and withdrawn his confidence from the governor. Many parents are in the habit of deceiving their younger children in this manner: perhaps a nauseous dose of medicine is to be given, the parent will say, "Now, my dear, open your mouth and take this, *it is good, tastes nice*," and when the confiding child has opened its mouth, the villainous compound is poured therein.

Nor are these little tricks always confined to the parents. I have seen doctors, who when about to lance an abscess, or boil, for a child, say, "Now, my child, I am not going to hurt you, just keep still, and *you will not feel it*," and when confidence was secured the sharp knife was thrust into the quivering flesh. I have watched the effect upon children who have been treated in this manner, and the pain and mortification of having been imposed upon by those in whom they have trusted was as evident as the physical suffering which they had endured. You can deceive children in this manner a good many times, but you have constantly to be devising new means of deception, and there comes a time at last when all confidence is withdrawn. Now, of course I do not know that Willie Brown was a boy upon whom such tricks had been played, but the giving to him of a sugar pill at just 8 A.M., and 8 P.M., for the purpose of warding off an attack of traumatic tetanus before he had received a scratch, was a step in this direction.

"Oh, what a tangled web we weave
When first we practise to deceive."

I can but believe, that if you had been honest with this twelve-year-old boy, you would have been able to quiet his nervousness on account of his apprehensions in regard to the lockjaw. And that if you were not able to convince him that his fears were groundless, there must have been something the matter with his head which required more for its cure than a No. 35 homœopathic globule. If Willie is a sharp boy, he may soon get hold of a copy of "The Physician Himself"; and then you will need to resort to some other deception, or your occupation in the Brown family, at least so far as Willie is concerned, will be gone.

But enough of Willie Brown. I have other objections to the teaching contained in "The Physician Himself" than the fact that it advocates the use of the placeboes. The spirit of its teaching is to give too great a prominence to appearances. The young physician is there taught how to *look*, and *act*, and *seem*, but he is not taught how *to be* a doctor. The *suaviter in modo* is everything; the *fortiter in re*, nothing. As one instance, let me quote from the book, page 19:

"Take care to be neat in your personal appearance; above all else wear a clean shirt and clean collar; for if you dress well people will employ you more readily, accord you more confidence, expect a larger bill, and pay you more willingly. You never heard of a bank swindler, or a confidence man, or a gambler, or a counterfeiter, or pseudo-gentleman of any kind, who dressed shabbily or appeared coarse. Such people are all students of human nature, and no matter how abandoned they are, no matter how tarnished their characters, or how blackened their hearts, they manage to hide their deformities as with a veil from all but the few who know their true characters, by assuming the dress and manners of gentlemen. Now, if genteel dress and polished manners can do so much for such fallen

specimens of mankind, how much greater influence must they exert for those who are truly gentlemen and members of a lofty profession. Clean hands, polished boots, neat cuffs, gloves, fashionable clothing, cane, sun umbrella, all indicate gentility."

Now it does seem to me that such teaching as this is rather calculated to belittle the medical profession than add dignity to it. I do not object to your telling the young doctor that he should always keep himself neat and clean (although he should know this before commencing the study of medicine), but I do object to the *reasons* which you give for his doing so. His reasons for so doing are not the same as are those of the bank swindler, the confidence man, the gambler, the counterfeiter, or the pseudo-gentleman; nor are they even because people will employ him more readily and pay a larger bill. Of all the reasons given, not one is the true one. The physician should dress like a gentleman, not because it will make him *look like* a gentleman, but because he *is* a gentleman. He should be neat and clean, not for the purpose of imposing upon anyone, but in order to preserve his own self-respect, and that he may not carry infectious germs from one patient to another. When the physician ceases to be a gentleman and becomes a loafer or swindler of any kind, let him dress the character which he takes:

One more objection to the teaching of your book, and I have done. On page 75 you say: "Do not lend yourself too freely to other physicians and surgeons; never make a habit of playing second fiddle by giving chloroform, etc., in surgical cases. If you go and do some secondary part in a surgical case you will be looked upon as a lesser light to the one you assist; and you will take a position of neither honor nor profit, and will reap nothing but responsibility." This, I contend, is not good advice. On the contrary, I think that the young physician who is the most ready and willing to assist his older professional brethren will be the most respected, and will reap the richest harvest in both honor and reward. How, I would ask, are the young men who are soon to take the places of their fathers to familiarize themselves with the more difficult obstetrical and surgical operations if they do not first learn to assist, and thereby see how the operation should be performed? The opportunities of witnessing the more difficult surgical operations upon the living subject are not so frequent that any young surgeon can afford to neglect them, if he desires to perfect himself in his art. He should esteem it an honor when called upon to assist an older practitioner. Scattered all over our land are excellent surgeons who only became competent to play *first* after they had played second fiddle.

There are other objections which I have to your book, but this letter is already too long. Whatever you may think of me for writing thus plainly, I hope you will give me the credit of having an honest purpose. Your book has had a wide circulation, and has been strongly indorsed, and while there are some excellent suggestions in the book to young men just entering the profession, there are others, in my opinion, which give erroneous ideas of the profession, its duties and responsibilities. Some of these errors are so great that I cannot permit them to go unchallenged. Very truly yours,

J. B. MURDOCH, M.D.

Pittsburgh, Pa., April 16, 1885.

BOOK REVIEWS.

TRATADO DE OPERATORIA QUIRURGICA, por El DOCTOR D. ANTONIO MORALES PEREZ, Catedrático de Número (por uniminidad de votos en la Oposicion) de Anatomia Quirúrgica, Operaciones, Apósitòs y Vendajes de la Facultad de Medicina de Barcelona; ex-Alumno interno, por Oposicion, de la Facultad de Granada; ex-Primer Ayudante Mèdico, por oposicion, del Ejército de Cuba; etc., etc., etc. Con un Prologo del EXCMO, SR. D. JUAN CREUS Y MANSO, Senador del Reino; etc., etc. Ilustrado con numerosos grabodos. Tom. 1 and 2. Pp. 751–755.

TREATISE ON OPERATIVE SURGERY, by D. ANTONIO MORALES PEREZ, M.D., etc., etc. With an introduction by D. JUAN CREUS Y MANSO, M.D., etc., etc. Illustrated with numerous engravings. Vols. 2. 8vo. BARCELONA. 1881.

The author introduces his work with a graceful review of surgery since the time of Ambrose Paré, and shows that, while engaged in the weightier matters of surgical theories and practice, he has not neglected the literary legacies of our predecessors. It is with no little pleasure that we notice Dr. Perez' work. Spain has not kept pace with other European countries in the tremendous strides toward exactitude in medical science, and we are glad to notice such evidence as this work gives that she is awakening to a sense of her duty to humanity. The author shows a most intimate acquaintance with the current surgical literature of the day, and few, if any, writers who have contributed anything to surgery of late years, are passed by in silence. He utters a plea for clinics, dissections of the cadaver, and surgical experiments, as being the only path to success in surgery. By these means only can we familiarize ourselves with operations, with surgical anatomy, and attain the mechanical skill which every operator should have.

Chapters I–XXV inclusive are devoted to a consideration of the general principles of surgery; the different anæsthetic agents, means of obtaining good results after operations, the various antiseptic agents, etc., etc. Surgical ischæmia and the different apparatuses for producing it, prominently Esmarch's bandage, are fully discussed. Though the author uses the bandage frequently, he is careful to state that it may be injurious under certain circumstances. He also

thinks well of the elastic ligature, and that its field of usefulness is as yet too limited. Torsion, in his opinion, should not be applied to large vessels, ligation being much more certain of success. He gives more space to surgical therapeutics than is generally taken up in works on surgery.

Though not a strict "Listerian," he, nevertheless, is a very positive antisepticist, and is particular that all instruments be thoroughly disinfected before and during an operation. Prominent among the diagnostic tables of the book, is one giving the differential diagnosis between malignant and benign tumors, at the end of which he impresses the fact that the thorough removal of carcinomatous structures, even to suspected glands and portions of tissue, adding that the wound is much more likely to heal than if diseased tissues be left.

In order to save time and facilitate ready reference, especially for the student, are various tables giving the exact location for the application of ligatures to various vessels, methods for treating tumors of various kinds, the various autoplastic operations, the different methods of treating aneurisms, fistulous tracts, and a very complete one of amputations, resections and excisions. The author is an earnest advocate for conservative surgery, and seeing the great success which has attended careful attempts to preserve limbs in almost hopeless cases, adopts substantially the views of Mr. Holmes, in the first edition of his system of surgery, that important joints and limbs should not be operated upon, while a reasonable hope exists of curing without operation, though smaller bones may be removed if diseased externally, even though a cure by non-interference may not be hopeless, as by this means the disease may be cut short. He has had very decided success in treatment of fractures of the femur by continuous extension and on that account recommends it in cases to which it is applicable. Plaster of Paris, though a most valuable dressing, is unsuited to many cases, in which, if thoughtlessly used, will cause it to be regarded unfavorably.

In the chapter on "Dislocations," he records a curious and rare case of left lateral dislocation of a dorsal vertebra in connection with a dislocation of a rib and fracture of the clavicle, due to traumatism. He regards the administration of an anæsthetic—of which he regards the a.c.e. mixture as the safest—in attempting the reduction of a dislocated limb as of great importance, not only as facilitating the reduction, but as lessening the liability to injury of the structures surrounding the joint.

Vol. II deals with the special operations on the different organs. Passing over the chapters on the eye, and the aural and nasal cavities, we see that the author has paid no little attention to the treatment of oral deformities, and, if we may judge by the illustrations, with considerable success. Gastrostomy he believes to be justifiable, when, after suffering from a disease which must prove fatal, there is some chance that the operation may prove palliative or curative; that when there is a probability of that measure of success, the patient should have the benefit of it. Until May, 1880, the mortality from ovariotomy in Spain was very large. In the majority of fatal cases the pedicle was treated with the clamp, or with the ligature or thermo-cautery and styptics. Since the almost exclusive use of the ligature, the mortality has greatly decreased. This seems to bear out the views of Mr. Lawson Fait regarding the dangers of the clamp. We cannot, in this short notice, pretend to do more than present a very superficial glance at the character and contents of the work before us. It promises better things from our Spanish *confrères* in the future, and with such an example and teacher in their midst, we may hope for a material advance in the surgical work of that country.

BABYHOOD; DEVOTED EXCLUSIVELY TO THE CARE OF INFANTS AND YOUNG CHILDREN, AND THE GENERAL INTERESTS OF THE NURSERY. Edited by LEROY M. YALE, M.D., and MARION HARLAND. 18 Spruce Street, New York.

We hail the appearance of this infant in journalistic circles with much more warmth than we could that of a new purely professional periodical. The field for the latter is already much crowded, but *Babyhood* is a periodical entirely *sui generis*, and it was a happy thought which prompted the editors to bring it into the world. Though it is only in its fifth number as yet, it shows evidence of staying strength; there are no indications that it will die of inanition. And it will augur badly for the good sense of our people when, if ever, it does so perish.

Babyhood is eminently a journal for the family, as most families have children. The April number opens with an article from the pen of Marion Harland, on "Baby's Day-nap" (showing that the day-nap is as important to the health of the baby as to the peace of the family). In an article on "Nursery Cooking," we are glad to find that it is recommended that a little salt be added to the cow's milk which is intended for the infant, a very important point; furthermore, that the milk should be boiled in a vessel which is set within another vessel holding water. This prevents the catch of boiling milk on bottom of the first vessel.

Dr. Jerome Walker, senior physician to the Seaside Home for Children at Coney Island, has the second of a series of articles on "The Accidents and Injuries of Childhood, and Their Prompt Treatment," in this number. This is followed by a paper by Dr. Ripley, on "True or Membranous Croup"; this by "Isolation in Infectious Diseases," by L. Emmet Holt, M.D. Next is an article by Dr. Sternberg, on "Domestic Disinfection"; and the last medical article is by Dr. George Henry Fox, on "The Care of the Hair." These articles are written for everyday use, and can be understood by almost anyone.

There is a department of "Nursery Helps and Novelties," well illustrated, which will be read with much interest by those having matrimony in view. The special department, "Baby's Wardrobe," is also illustrated, and well, we suppose. The explanatory text of the cuts is somewhat unfamiliar reading, but we have no doubt that it is correct.

This, as we have said, is essentially a family periodical; and physicians would do well to advise its early reception into every household in which there is a likelihood that there will be young children. They may be sure that nothing will be admitted to its pages which could do otherwise than elevate the hygiene of the infant and of the household. It may be recommended to every family, and to every mother, in the most unqualified manner. It is ably edited, and its general "get up" is excellent.

A Pharmacopœia for the Treatment of Diseases of the Larynx, Pharynx, and Nasal Passages; with Remarks on the Selection of Remedies and Choice of Instruments and on the Methods of Making Local Applications. By George Morewood Lefferts, A.M., M.D., Clinical Professor of Laryngoscopy and Diseases of the Throat, College of Physicians and Surgeons, New York. Second edition, revised and enlarged. 18mo., pp. 101. New York: G. P. Putnam's Sons, 1884.

The first edition of this little book was given to his students by the author about five years ago; and it is needless to say that it was most highly appreciated by those who were most constant attendants upon his lectures. It contains far more that is valuable than a great many books ten times its size. We are glad to see that Dr. Lefferts has omitted the word "Manual" from this edition as from the first; it is also pleasing to note that the publishers have made the book just a little too large to be carried in the vest pocket. Besides the formulæ contained in it there is a sufficient amount of descriptive matter, and quite a number of cuts to illustrate instruments, though the time-honored impossible view of the posterior nares is not to be found, indicating, it is to be hoped, that the plate is worn out.

It is useless to enter into an elaborate discussion of the book; the author is so well known as an authority on all matters laryngeal, pharyngeal, and nasal that whatever he writes can be taken on trust. It is a good little book.

Micro-Chemistry of Poisons, including Their Physiological, Pathological, and Legal Relations; with an Appendix on the Detection and Microscopic Discrimination of Blood; adapted to the Use of the Medical Jurist, Physician, and General Chemist. By Theodore G. Wormley, M.D., Ph.D., LL.D., Professor of Chemistry and Toxicology in the Medical Department of the University of Pennsylvania. With ninety-six illustrations on steel. Second edition. 8vo, pp. 784. Philadelphia: J. B. Lippincott Company, 1885.

When the first edition of this book appeared it was confidently asserted by the reviewers that it would prove a success; and the early exhaustion of that edition and the call for the second have shown that the book was correctly judged.

We have only one fault to find with the present edition; the section on "Ptomaines" is too much abridged. It would seem that the amount of work which has been given to this subject should have merited fuller consideration than Professor Wormley has given to it. Beyond this, however, no fault can be found with the work; it demands a separate place in medical literature, occupying the middle ground between legal medicine proper and medical chemistry. To each of these branches it is an invaluable, and, we may say, indispensable adjunct. The author has shown that he is no less apt as a writer of a good book than as an able and efficient teacher of chemistry. The publishers have done their portion of the work well, on good paper and with clear type. A comprehensive index completes the book.

MISCELLANEOUS.

Report of the New York Tenement-House Commission.—This report, which was submitted to the Assembly on February 17, shows that 968 houses were inspected. It estimates the number of tenement houses in New York at 2,600, and recommends a registration of tenement statistics.

The percentage of deaths in tenements has increased from 51.11 in 1876 to 56.50 in 1884. The percentage would be greater were it not that sick occupants of tenements go to charity hospitals, to which their deaths are credited. In one district the mortality of children under five years of age is over 65 per cent. The greatest sickness is in the rear tenements, of which there are 3,000 in New York.

The Chief Inspector, Frederick M. Owen, draws the following conclusions in his supplementary report:

1. There are buildings which should be ordered immediately vacated.

2. The number needing inspection of plumbing is very large.

3. It is impossible to make owners or tenants obey sanitary laws without systematic inspection

4. Such inspection is impossible with the small force of inspectors of the Health Department, even in its present efficiency.

5. The privy vaults in this city should be condemned.

6. The water-closet is preferable to the school-sink.

7. All water-closets, vaults, and school-sinks in tenement cellars should be removed.

8. Cellars in made ground with tide influence are flooded at high tide.

9. City cellars throughout lack care and cleanliness.

10. The waste of water requires special attention.

11. The majority of bedrooms are without light or air.

12. The darkness of halls conduces to immorality.

13. The location of fire escapes often exposes to unnecessary danger.

14. The condition of tenants is in advance of that of tenements.

15. Tenants generally appreciate the importance of sanitary measures.

16. That some of the worst tenements contain only three families.

17. That rents are unnecessarily high among the poorer tenements.

18. That illegal crowding is universal among the Polish Jews, Italians, and low Irish.

The following table shows the total deaths in New York, total in tenements and percentages:

	Total Deaths.	Total in Tenements.	Per-centage.
1880	38,866	27,677	45
1881	38,609	21,171	55
1882	37,951	20,690	55
1883	33,982	18,359	54
1884	35,044	19,801	56½

The chief obstacles in the way of improving tenements are carelessness of tenants, indifference of landlords, difficulty in finding owners, non-residence of owners, mortgages, disposition of agents to do mere patchwork, etc.—*The Sanitarian*, March, 1885.

THE SANITARY CONDITION OF CHICAGO. — A leading daily paper of this city thus comments on the uncleanliness of the city: "There are miles of alleys, and streets too, in which offal, refuse, kitchen garbage, and all manner of filth have accumulated untouched all winter. Every quarter of the city, almost, contains vacant lots which have been made the common dumping ground for similar accumulations during many months. These things are public nuisances which the private citizen, called upon to put his own premises in good sanitary condition, has a right to demand shall be promptly abated by the city. The rains of the last week have made it feasible to enter at once upon this work of abatement. The Health Officer says that, if necessary, he is prepared to put a thousand carts at such work. There can be no question as to its necessity. Let the streets and alleys be cleaned forthwith, and compel every owner of a vacant lot to promptly abate any nuisance existing thereon; or, if he fail after due notice, short and sharp, let the work be done by the city at the owner's expense. Until these things are done it matters little what the present death rate is, or what the individual householder does; the city will remain a very dirty one; it will continue to offer an invitation to epidemic disease, and life and labor, both mental and physical, will be unnecessarily handicapped by conditions for whose existence there is not a shadow of excuse."

THE CHOLERA IN SPAIN. — The European countries bordering on the Mediterranean have a quarantine against all vessels shipping from Spanish ports.

A dispatch of April 19 states that the panic in Spain over the spread of cholera is increasing, as reports continue to arrive showing that new points are being constantly attacked. The government is taking energetic measures to isolate infected towns. In addition to the places hitherto mentioned, suspicious cases have occurred at such widely separated points as Jean Andalusia, in the south of Spain, and Santiago de Compostela, Galicia, in the extreme northwest corner of the kingdom.

The *Chicago Tribune's* Barcelona correspondent telegraphs as follows:

"The mysterious disorder here and at various other Spanish ports, which led to quarantine regulations at Toulon and Marseilles, and which excited adverse opinions in the chambers of commerce there, has been investigated by the *Tribune* correspondent. There have been about a hundred cases and fifteen deaths of the disorder. It is cholera morbus or cholerine, and not at all of an Asiatic type. It is of local origin, say the authorities, who call themselves sanitary. Your correspondent hears descriptions of a similar disorder at Alcira, near Valencia, where, in consequence of the failure of the regular water supply by the Aqua Santa Company, the people have drunk from a canal which was tainted by paper mills that use suspicious rags. Your correspondent to-day met a physician who, however, said that these disorders, unless great care is taken, might lead up to pronounced cholera in the coming hot season."

PLEURO-PNEUMONIA; RULES ADOPTED BY COMMISSIONER COLMAN FOR STAMPING IT OUT.—A dispatch from Washington states that the first comptroller having decided that the commissioner of agriculture can legally use the pleuro-pneumonia appropriation to pay for such animals as it may be found necessary to kill in order to stamp out an infection, Commissioner Colman has procured a set of rules to govern the action of the department in this regard, and has telegraphed a copy of them to Gov. Marmaduke, of Missouri. The rules will be submitted to the executives of other states for acceptance. They are as follows:

"Whenever the chief of bureau of animal industry shall be satisfied and shall report to the commissioner of agriculture that contagious pleuro-pneumonia or other dangerous infectious or communicable disease exists in any state or territory, and is liable to spread from such state

or territory into any other state or territory, the commissioner of agriculture will designate one or more officers or employés of said bureau whose duty it shall be to proceed immediately to the locality where such infectious or communicable disease is reported to exist, and to there establish quarantine regulations to prevent the spread of said disease, or to assess the value of any animal or animals which it may be found necessary to destroy in order to extirpate said disease, and to employ both measures if necessary for the extirpation of the same. It shall be the duty of such officers or employés detailed for the purpose aforesaid to report to the commissioner of agriculture the number of cattle they have found it necessary to destroy, with the names of their owners and the assessed value of said cattle; and said officers or employés shall deliver to said owner or owners certificates of the number of cattle so killed and the assessed value thereof. Upon receiving said report the commissioner of agriculture shall examine the same, and, if he approve the proceedings of said officers or employés and the assessments made by them, he may order the payment of the amount so assessed to the respective owners of the cattle destroyed, and if he shall disapprove the amount so assessed he may order payment to said owners of such sum as he may deem a just and reasonable compensation for said cattle. It shall also be the duty of said officers or employés to cause carcasses of animals found necessary to be destroyed to be burned, buried, or otherwise destroyed, and the cost of such disposition of said carcasses shall also be reported by them to the commissioner of agriculture, and the amount, if approved, will be paid out of the fund appropriated for such purposes. If, in the opinion of said officers or employés so detailed, the spread of such infectious or communicable disease can be prevented by the quarantine of the animals in the locality where such disease is reported to exist, then a safe and sure quarantine shall be effected, the cost of the same to be also reported to the commissioner of agriculture, and, if approved by him, the same to be paid out of the fund hereinbefore named."

Rules governing the details of slaughter and quarantine will be prepared immediately.

Pleuro-Pneumonia in Illinois.—Reports from different sections of this state show that pleuro-pneumonia is existing to an alarming extent, and that it is spreading. The general alarm on the subject of the disease resulted on April 24 in the introduction of a new pleuro-pneumonia bill in the legislature, which was read the first time and ordered to a second reading without being referred to a committee. It authorizes the appointment by the governor, with the concurrence of the senate, of three live-stock commissioners to hold office for one, two, and three years respectively, in the order of their appointment, and at the expiration of the several terms the vacancies are to be filled for the entire term of three years. Their duties are to investigate all cases of contagious disease in domestic animals as reported to them or coming to their knowledge, and to properly quarantine infected animals or premises under prescribed rules. They are authorized to direct the killing of animals afflicted with or exposed to pleuro-pneumonia and other fatal and contagious diseases. The bill further provides for the appointment by the governor of a state veterinarian to act under and in connection with the board of live-stock commissioners, which is to have the power of appointing necessary assistants, with the approval of the board. When, on report of the commissioners, the governor becomes satisfied that any of the mentioned diseases have become epidemic in any locality outside the state or otherwise, he may by proclamation schedule such localities and prohibit the transportation of stock from them into the state without a certificate of health from the veterinary inspector of the board. A fine of from $1,000 to $10,000 is attached to a violation of this provision, and the guilty party is likewise made civilly liable for all loss or damage resulting to anyone from his act. Traffic in diseased live stock, or failure to report to the board the existence of disease is declared felony, punishable by imprisonment for not less than one nor more than ten years, or by a fine, as in the former case. The commissioners are empowered to assess the damages accruing to anyone by reason of the killing of his stock by their direction, and their assessment, when approved by the governor, is to be paid by the auditor. No compensation, however, is to be allowed for animals already diseased. The bill, after minor provisions to strengthen its working efficiency, concludes with an emergency clause.

Cancer of the Tongue and Smoking.—Mr. Whitehouse writes to the *British Medical Journal:* "As to whether smoking may be the immediate cause of cancer, surgeons are not agreed; but there is a condition of the tongue which is, in many cases, the precursor of epithelioma, namely, 'leucoplakia'; and this disease is more generally considered to be caused by smoking. Mr. Barker, writing on this inflammation, in Holmes' 'System of Surgery,' points out that among 75 recorded cases, 71 smoked, and only 4 were non-smokers. Buzenet used the term, '*plaques des fumeurs*' for this disease, because he was convinced that smoking so often gave rise to it. Mr. Hulke has more than once shown that 'leucoplakia' may be the starting-point of epithelioma, and out of the above-mentioned 75 cases, 44 developed epithelioma, and in one only was there a family history of cancer." Mr. Morris also states that out of 55 cases of cancer of the tongue, 13, or about one-fourth, had been the seat of this leucoplakia, or icthyosis. Mr. Bryant's experience has been of a similar character.—*Medical Record*, April 4, 1884.

PREPARING TO FIGHT CHOLERA; A CONFERENCE OF HEALTH OFFICERS,—Health officers, representing Baltimore, Philadelphia, New Haven, Boston, Brooklyn, and New York, held a conference in New York on April 23, to agree upon uniform negotiations to prevent the introduction of cholera into this country. It was concluded to establish a close quarantine against old rags, and to allow none to be landed except after being thoroughly boiled or steamed by the superheated steam process. The sulphur process was declared to be a failure, and the conference decided against it. It was mentioned incidentally that the fact of there being so few cases of smallpox in New York city during the past month was traceable to the stringent regulations requiring all old rags to be disinfected. The close quarantine against all old rags will be carried out at all the Atlantic ports.

PLEURO-PNEUMONIA IN MISSOURI.—Dispatches from Fulton, Mo., state that the people of Callaway county are becoming greatly discouraged at the failure, so far, to stamp out pleuro-pneumonia among the cattle in that county. The disease is constantly spreading, not only in Callaway county, but in adjoining counties. It is said that over one thousand cattle have either become diseased or have been exposed to the plague. The live-stock men of St. Louis have adopted a resolution taking the ground that the disease can only be eradicated or controlled by state action. They strongly urge the government to call a special session of the legislature to take vigorous measures to stamp out the disease. It is said that the cattle interest in the state has already suffered a depreciation in value of over $500,000.

CHOLERA IN SPAIN.—The Marine Hospital Bureau has as yet received emphatic denials of the reports that cholera prevails in Spain. Every precaution is being taken to prevent the introduction of contagious diseases into this country. The quarantine stations at Ship Island and Sapelo sound are already in operation, and those at Cape Charles and Delaware breakwater will be open May 15. The revenue steamer Manhattan will be utilized as a quarantine boat at the Cape Charles station.

DANGEROUS FACTORIES.—The Health Officer of Chicago has recently closed a toy-balloon factory in which was used a solution of bisulphide of carbon, which causes paralysis of the extremities of those who dip the balloons in the liquid. The Health Department is now investigating the matter. Five boys, between the ages of 12 and 14 years, were employed in dipping the balloons, and all of them have suffered from paralysis of the muscles of the hands and feet.

THE INTERNATIONAL SANITARY CONFERENCE.—It is stated that communications have been sent to the European powers to send delegates to an international sanitary conference to be held in Rome, it is thought, about the 1st of May. It seems that the government at Washington has been passed over in this matter, and that no delegates will go from this country.

THE STATE BOARD OF HEALTH OF MAINE has an annual appropriation of $3,000 for its maintenance. The act which incorporates it is very similar to the Michigan act. The legislature of Maine has also passed a bill requiring the teaching of temperance and hygiene.

THE SAN FRANCISCO COUNTY MEDICAL SOCIETY proposes to have a reading-room, but has to meet the following conclusive objections: "1. That of extra expense; 2, that the present library is not consulted; 3, that the present library is not worth consulting."

THE STATE BOARD OF HEALTH OF INDIANA, as newly organized, is powerless. The bill reorganizing it was passed without the enacting clause, and the board will have to remain as before.

RETIREMENT OF PROFESSOR BOUCHARDAT.—Dr. Bouchardat, Professor of Hygiene at the Paris Faculty of Medicine, has, after a service of nearly forty years, retired, and his name is transferred to the list of honorary professors.

PROFESSOR AUSTIN FLINT, JR., received the honorary degree of LL.D. from the Jefferson Medical College at the annual commencement, held on April 2.

DISEASE IN THE ENGLISH ARMY IN EGYPT.—Late dispatches from Egypt state that the condition of the English soldiers is deplorable. From morning to night they swelter under a scorching sun, and from night to morning they are busily fighting the vermin, with which the country swarms. Many are dying of typhus and enteric diseases.

TRICHINOSIS IN ST. PETERSBURG.—There have been very recently about twenty cases of trichinosis in St. Petersburg, all in one family, and all from eating raw pork. The authorities have not yet determined whether the trichinous pork was of native origin or whether it came from Germany.

CHOLERA IN EGYPT.—It is stated that cholera has reappeared at Cairo, and that seven deaths from the disease have occurred there. The Egyptian government has decided to quarantine vessels arriving from ports on the Mediterranean littoral of Spain.

SCARLET FEVER IN ILLINOIS.—It is reported that scarlet fever prevails to an alarming extent in the village of Pecatonica, Ill., and all the schools have been indefinitely closed.